

amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



VOL. 48, No. 2

FEBRUARY 1980

FEATURED IN THIS ISSUE:

- ★ 1979 RD CONTEST RESULTS
- ★ Review: KENWOOD R1000 GENERAL COVERAGE RECEIVER
- ★ Review: YAESU FT207R SYNTHESISED 2m HAND-HELD
- ★ THE WEE WILLIE WONDER ANTENNA COUPLER
- ★ AN 80 METRE VERTICAL

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| Cooling Fan: For the 101Z (or replacement on 901). | CatD-2865 | \$39.00 |

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| | | |
|--|-----------|----------|
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Cover Photo

AMATEUR RADIO ASSISTS RUNNERS

The "Sun" City to Surf Race held in Syd-
ney during August 1979 attracted some
21,000 runners. Amateur Radio provided
communications consisting of a radio link in
the lead vehicle, numerous check-
points along the route and portable man-
pack links. Eric Van de Weyer VK2ZUR
seen here relaying a message for a race
official at Bondi Beach, the race finish.

2 metres FM via a repeater was used as
the primary system with a HF network

back-up. The lead vehicle relayed up to
the minute positions of the front runners.
Numerous fixed check-points provided in-
formation for medical assistance to
exhausted runners. This is the second year
that Amateur Radio has provided com-
munications and it has proved to be a
worthwhile contribution, bringing to the
attention of the public what Amateur Radio
can do.

Photo: VK2ATU

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NSW:

President — Mr. F. S. Parker VK2NFF

Secretary — Mr. T. I. Mills VK2ZTM

Broadcasts — 1825, 3595, 7145 kHz, 28.32, 52.1,

52.525, 144.1, 145.6, 146.4, Rptr. Ch. 3;

3 — Gosford, Ch. 4 — Lismore, Ch. 5 — Wollongong, Ch. 8 — Dural 11.00h local (Evening 0930Z), Relays on 160,

80 and 10m, VHF and UHF, Ch. 3,

Ch. 5, Ch. 8, and Hunter Branch,

Mondays 0900Z and 3595 MHz, 10m,

and Ch. 3 and 5. RTTY Sunday 0000Z

7045, 14000 kHz, Ch. 52, 0930Z 3545

kHz, Ch. 52.

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Secretary — Mr. G. F. Atkinson VK3YFA

Broadcasts — 1840, 3600, 7135 kHz — 53.032 AM,

14.2 USB and 2m Ch. 2 (5) repeater:

10.30 local time.

Gen. Mtg. — 2nd Wed., 20.00.

QLD.:

President — Mr. A. J. Aarssen VK4QA

Secretary — Mr. W. L. Gillies VK4ARG

Broadcasts — 1825, 3580, 7146, 14342, 21175, 28400,

kHz; 2m (Ch. 42, 48): 09.00 EST.

Gen. Mtg. — 3rd Friday.

SA:

President — Mr. I. J. Hunt VK5QX

Secretary — Mr. W. M. Wardrop VK5AWM

Broadcasts — 1820, 3550, 7075, 14100, 14175 kHz; 28.5

and 53.1 MHz, 2m (Ch. 8): 09.00, S.A.T.

Gen. Mtg. — 4th Tuesday.

WA:

President — Mr. Ross Greenaway VK6DA.

Secretary — Mr. Peter Savage VK6NCP.

Broadcasts — 3560, 7075, 14100, 14175 kHz; 28.485,

52.295 MHz; 2 metres Ch. 2 Perth, Ch. 5 Wagin. Time 0130Z.

Gen. Mtg. — 3rd Tuesday.

TAS.:

President — Mr. I. Nicholls VK2ZZ

Secretary — Mr. P. T. Blake, VK7ZPB

Broadcasts — 7130 (AM) kHz with relays on 2m

Ch. 2 (S), Ch. 8 (N), Ch. 3 (NW), 09.30 EST.

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Vice-Pres. — Barry Burns VK8RDI

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Broadcasts — Relay of VK5WI on 3.555 MHz and on

148.5 MHz at 2300Z. Slow Morse

transmission by VK8BHA on 3.555 MHz

at 1000Z almost every day.

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VK1 — P.O. Box 46, Canberra, 2600.

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VK6 — G.P.O. Box N1022, Perth, 6001.

VK7 — P.O. Box 1010, Launceston, 7250.

VK8 — (Incl. with VK5), Daretown Club, P.O. Box 37317, Winnellie, N.T., 0789.

Slow Morse transmissions — most week-day evenings about 09.30Z onwards around 3550 kHz.

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VK9 — Federal QSL Bureau, Mr. N. R. Penfold VK6NE, 388 Huntriss Rd., Woodlands, W.A. 6018.

After all those years of preparation it is now time to look back on the results of WARC 79.

Results that have given the amateur service three new high frequency bands and access to many more bands by the amateur satellite service.

These results did not just happen, they were the result of a co-ordinated and concerted effort.

After the 1959 conference, John Moyle made a few very pertinent comments in his article in AR of March 1960 about the future of amateur radio in its relationship with and preparation for ITU conferences. Those lessons of 1959 were well learnt.

Firstly, our WARC 79 ground work preparation started many years before the conference with the development of an international amateur radio position formulated by the representatives of amateur radio societies in each of the three ITU regions.

This position, having been refined, was then presented to many administrations thus indicating a consistent amateur requirement. There was also an effective international organisation providing the back-up for national societies.

In Australia there was amateur participation from the very beginning of the Australian Government preparation for WARC 79. The importance and value of membership of the national delegation cannot be over-emphasised.

In view of the complexity of the WARC agenda the ability to have two amateur representatives on the Australian delegation was a godsend; particularly as there were many simultaneous working group meetings discussing amateur matters.

It was in these working group meetings that the decisions were made and delegates had the opportunity of putting their cases in order to influence these decisions.

Every stage in the WIA preparation for WARC 79 on behalf of Australian amateurs was vitally essential: None could have been bypassed —

- The preliminary preparation;
- The complete participation in the Australian preparatory group;
- The attendance at preliminary ITU meetings particularly the special preparatory meetings of the CCIR culminating in the acceptance of two members on the Australian delegation.

Notwithstanding the heavy cost in time and money, all this has proved to have been well worthwhile in results obtained.

D. A. WARDLAW,
Federal President.

QSP —
WARC
79
IN
RETROSPECT

WIANEWS

6 METRE BAND

The text of the latest letter from the P. and T. Department reads: "Reference is made to your letter of the 12 October and 7 November 1979 concerning use of the 50-52 MHz band in Australia by the Amateur Service.

"The use of this portion of an Australian Television band outside of normal viewing hours is presently studied following the recent decisions made at the World Administrative Radio Conference.

"It is therefore considered that the appropriate time for the discussions you have requested will be after clear guidelines are established".

This question is being pursued as urgently as possible, especially as Melbourne's TV Channel 0 will move to Channel 10 near the end of January.

INTRUDER WATCH

Alf Chandler VK3LC, the Federal Intruder Watch Co-ordinator, having relinquished this post at the end of 1979, has handed over to Graham Fuller VK3NXL and this has been confirmed. Graham's address is P.O. Box 156, Healesville, Vic. 3777.

OFFICE

As shown in January AR the Executive office news address was notified. The telephone number is (03) 598 5962. The postal address is unchanged.

1980 FEDERAL CONVENTION AGENDA ITEMS

Item 80.121 from VK5 reads:

"That the P. and T. Department be requested to include on the 'application for an amateur station licence' the right to suppress publication of the licensee's name and address from the Australian Call Book".

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Item 80.122 received from VK2 reads:

"That the WIA makes representations to the Department that the authorised maximum FM deviation on the 29 MHz band be increased from ± 3 kHz to ± 7.5 kHz".

Item 80.091, also from VK2, reads:

"That higher operating requirements for new HF bands be discussed".

The Executive will also be introducing several Agenda Items mainly of a procedural nature to permit discussion, and arisings, on WARC 79, IARU and continuing action from previous conventions. The 1980 Federal Convention (the 44th) will be held in Melbourne (Brighton Savoy Hotel) from 25th to 27th April 1980. Agenda Items should be sent to your Division as quickly as possible so that they can be published in AR beforehand to allow members to make comments on them to their Divisions.

AR

The print run for AR reached 8000 for the first time. A WIANEWS Special, reporting on WARC 79, was issued as an insert into January AR.

WARC 79 DONATIONS

The accounts for 1979 show that donations towards the expenses of WARC 79 received in that year from WIA members totalled \$5049 and from non-members (including AR advertisers) \$4330. As will have been noted from the Federal accounts (see AR July, page 30) the amount brought forward, including investments which have since been encashed, was \$13,956. The magnificent response for funds means that the expenses of this very important costly representation was just about covered. The Executive wishes to acknowledge the receipt with grateful thanks of further donations from members —

LIST No. 10

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| VK3BFQ | 10.00 |

QSP

JANUARY AR

In the hiatus caused by holidays the quantity received of the January issue was a little short unfortunately. A few people near the end of the labels missed out in the mailing. The missing copies will be sent out as soon as possible after the printers return from the annual shut-down. ■

WILLY WILLIES WEE WONDER —

SIMPLE ANTENNA COUPLER

M. N. O'Burtill VK3WW
3 Maxwell Street, Lalor

A simple and effective antenna coupling unit for the novice and low power operator.

Like most operators I like to explore new fields and of necessity have to adapt equipment to particular needs. In this case it was portable operation from my caravan using an FT7 with a helical antenna and a Marconi 300 ohm ribbon antenna.

I soon decided that an aerial coupling unit was needed. The design, apart from electrical considerations, demanded that the unit be physically small, easy to tune and calibrate and be inexpensive. As the FT7 is a lower power rig, small tuning capacitors could be used.

I chose the Robian single gang broadcast tuning capacitor which retails for about \$5 each. I had on hand a Toroid core, which was red and marked G 29SW479 U142. This core measures 20 mm outside diameter, 13 mm inside diameter and 6 mm deep. I think any toroid of about this size which is capable of working in the range 3 to 30 megahertz would be suitable. The Neosid type part No. 28-023-34 should be suitable also.

Winding the coil on a small toroid can be difficult, particularly when it comes to making taps every 3 turns. My method in this case was to wind on 3 turns of 20 gauge wire and leave a half inch lead on each end. I then removed this winding and straightened it out, next I cut 9 other pieces of wire of exactly the same length. Clean the enamel for half an inch on each end of each wire and carefully trim each end. Now wind 3 turns with the half inch ends pointing across the toroid. Wind another 3 turns and lightly solder one end of the first coil to the start of the second coil, continue like this until you have 30 turns wound round the toroid. Spread or compress the turns so that the coil is fairly evenly spaced around the toroid.

Now starting at the first tap, unsolder the join and twist the half inch ends together to make a good mechanical join and then resolder. Repeat this process at each tap point and leave the two ends of the coil free.

Carefully solder each tap point to the ten position switch. You will find that this method holds the coil quite rigidly and no further mounting is required. The earth end of the coil is connected to a convenient chassis point using as short a lead as possible. The tuning capacitors are in series with the antenna and therefore are at RF potential. It is essential that they

be completely insulated from the chassis and that insulated knobs be used. A scrap of perspex sheet is a good insulator in this case. I mounted the capacitors on a piece of perspex then laid another piece under this and bolted the lot to the chassis. Of course the holes in the front plate through which the capacitor tuning shafts pass must be large enough to avoid the possibility of the shafts touching the metal plate. Likewise do not mount the capacitors too close to the front plate, the shaft is long enough to allow this.

TUNING UP

From the circuit, Fig. 1, you will note that I have included a switch to allow direct feed. This is handy for testing the effectiveness of the aerial coupling unit. Hook up the rig, SWR meter and aerial coupling unit as in Fig. 2 and tune in the signal with the aerial coupling unit switched out (direct feed). Note the S metre reading and switch the coupling unit in. Set C1 and C2 to maximum capacity and L1 to maximum inductance.

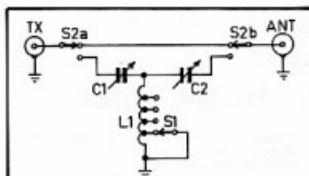


FIG. 1: Circuit diagram C1 and C2 Robian 10-415 pF single gang. S1-10 position rotary switch. S2-DPT switch. L1 — 30 turns tapped every 3 turns on ferrite toroid. Neosid Part No. 28-023-34 or similar.

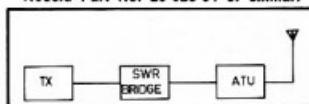
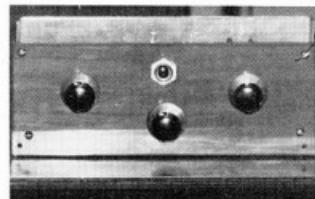


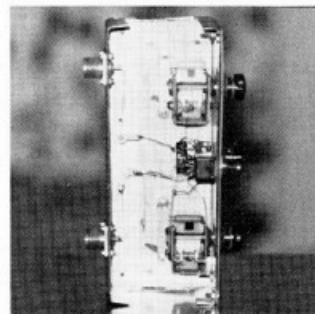
FIG. 2: Block diagram of coupler in use

Switch the taps on L1 and see if you get an increase in received signal. Now tune C1 and C2 alternately to peak the signal and note the settings of L1, C1 and C2. Switch the coupler out and apply power from the transmitter and note the SWR reading. Of course you should tune clear of the received signal a few kilohertz so that you don't cause interference. Now switch the coupler back into circuit and note the SWR reading.

At this stage I should explain that you don't always get a really good indication



The completed unit



Inside view

on received signals. If the SWR is too high or not improved from direct feed, switch the coil one tap each side of its present setting. What you are looking for is a drop in reflected power and an increase in forward power. A twin meter bridge is very useful in this situation. The meter indications are quite dramatic and show clearly when the correct tap is found. After this, alternately adjust C1 and C2 to obtain maximum forward and minimum reflected power. You should be able to achieve virtually one to one SWR on any reasonable antenna.

Once you have found the correct settings for an antenna on one band make a note of them, as they will be a good starting point for that band on any other antenna.

WHAT ABOUT HIGHER POWER?

Yes this circuit will work with higher power rigs. Larger capacitors must be used, that is ones with greater plate spacing, and to avoid excessive heat loss a larger toroid is recommended. I am indebted to Charlie VK3BIT for bringing this circuit to my notice. It really works well, is easy and cheap to build and with low power rigs can be quite a small size which will fit in anywhere. ■



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THE KENWOOD R1000 GENERAL COVERAGE RECEIVER

Ron Fisher VK3OM

Trio Kenwood have a long history in the manufacture of general coverage receivers. Many hundreds of 9R59D/DE and DS's are still in use. The later R300 series did not reach the popularity of the earlier receivers. It seems now that Kenwood have produced a receiver that could lead the field for some time to come.

The R1000 is a fully solid state general coverage communications receiver with all required facilities but at the same time offering simple operation. It is obviously aimed at short wave listeners and at the growing market of people interested in overseas reception to keep up with current affairs. It is also the in-thing for amateur operators to have a general coverage receiver handy.

CIRCUITRY AND TECHNICAL DESCRIPTION

The R1000 tunes from 200 kHz to 30 MHz in thirty bands each one MHz wide. An analog dial with 10 kHz calibration divisions is supplemented with a LED digital readout with one kHz resolution. This readout is also switchable to a crystal controlled clock with facilities for preset switching on and off both the receiver and auxiliary equipment such as a cassette recorder. Selectivity is taken care of with three Murata ceramic filters. These provide for wide AM, 12 kHz, narrow AM, 6 kHz and SSB with 2.7 kHz selectivity. A first for this type of receiver is the inclusion of a noise blower. Other features include an RF attenuator for the receiver front end, a dimmer switch for both the digital display and dial and S meter illumination and an audio tone control.

The R1000 is the first receiver of its type to get away from the Wadley Loop principle and yet still have the advantages of this type of operation. The PLL synthesizer provides a heterodyne signal to the first mixer to up-convert to 48.0 MHz. The second mixer converts to 455 kHz and this is also fed from the synthesizer. Both first and second mixers are balanced. The synthesizer output is also used to switch in appropriate band pass filters for the receiver front end. This of course eliminates the need for separate front end tuning and the need to follow main tuning with the preselector to maintain sensitivity. As if

this was not enough, the synthesizer also drives the digital readout.

The R1000 has a built-in AC power supply designed to operate from 100 to 234V. There is no provision for any in-built battery supply — but a DC connector allows for externally supplied 12 volt DC operation.

APPEARANCE AND IMPRESSIONS

Kenwood have carried through the general appearance of the 120 series transceivers to the R1000, although the front panel dimensions are slightly larger and the cabinet depth slightly less. The R1000 weighs in at 5.5 kg. Overall the appearance would have to be rated as very good and the only criticism possible is the analog dial and 'S' meter. The faces of both are completely opaque and finished in a bright silver. The calibration points are rear illuminated in bright green, but under conditions of high ambient light, reflection from the silver makes the dial and 'S' meter hard to read. With low external light both are very legible.

Controls are in general easy to use. The only exception to this is the tone control which is concentric and to the rear of the volume control. As its diameter is only slightly larger than the volume control it is hard to operate. Perhaps the next model will have a small lever extending from it to help.

The unusual carry handle seems to be either liked or completely disliked, however it does serve a useful dual purpose. As well as being a carry handle it also acts as a variable tilt angle support for the receiver when installed on a desk.

Another feature is the rear panel. This is recessed and set at an upward facing angle, and allows connections to be changed easily with the set in situ. Connections can also be routed into the back panel with the set pushed hard against a wall.



PHOTO 1: Good appearance — the R1000 and a TS20S

THE R1000 IN USE

For comparative tests we set up the R1000 alongside a TS20S, with a two position coax switch to feed both from the same antenna. The antenna for low frequency reception was at first a parallel connected 80 metre dipole. It was soon obvious that this was a bit too much. Even with the RF attenuator at the 40 dB point there was quite a bit of cross modulation. We finished up with about 10 metres of wire stretched out on the floor and this gave excellent broadcast and long wave reception. Aircraft NDBs were audible at good strength over distances of 100 km or so. Quality of broadcast reception was outstanding. With a Hi-Fi speaker plugged into the extension speaker output, the high frequency response was superior to my AM/FM Hi-Fi outfit. This was of course using the wide AM mode of the R1000.

However, over to the short wave bands and naturally the first part we checked were the amateur bands. Anything audible on the 820 was equal in every way on the R1000. It was only under the most difficult QRM conditions that the superior selectivity of the 820 made a slight difference. But mark this, the difference was slight and this applied to all bands including ten. The turning rate, although somewhat faster than the TS20S was still good at

50 kHz per knob revolution and a very smooth dial drive made tuning of SSB easy. It should also be noted that SSB resolution is made considerably easier with the 2.7 kHz bandpass as compared with receivers with similar tuning rates but wider selectivity. The calibration of the digital readout proved to be quite accurate in the AM mode and a plus or minus one kilohertz error on SSB depending on the sideband selected. One of the highly rated points of the R1000 is the noise blanker, however we found its action rather disappointing. In fairness, it was no worse than the blanker in the 820S but I have never considered that one very good either. It did reduce ignition noise to some extent and appeared more effective on the higher frequencies above 20 MHz.

The quartz controlled clock was extremely accurate for the duration of our test. It is of course independent of the mains, so that even when the R1000 is run from a battery supply the clock will still operate. On a personal point, I would have preferred a 24 hour type to the 12 hour one. AM and PM indicators however overcome this to some extent.

Output to a cassette recorder is made via a 3.5 mm phone socket and audio level proved excellent for the aux. socket on my AIWA recorder. This output is at a constant level and is not affected by

the setting of either the volume or tone control.

While on the subject of the tone control, I thought that its effect was too small and more top cut would have been useful in many cases.

However, most criticism would have to be mild in view of the overall superb performance of the receiver. The R1000 is well ahead of any other comparable receiver on the market at the present time.

Overall stability proved most impressive with total drift not exceeding one kilohertz over several hours of operation.

INSTRUCTION BOOK

The receiver tested was an early sample and did not come with an instruction book and in fact it was to be several weeks before one came to hand. When it did, I was delighted until I opened it and found not one, but several instruction books all in different languages. This means that instead of one large (at first sight) book, there is one rather small book. The information contained is completely directed at a non-technical user. Apart from the block diagram and the circuit diagram there is no technical description at all.

It seems a pity in this age when equipment is getting better all the time, general instruction books are steadily getting worse.

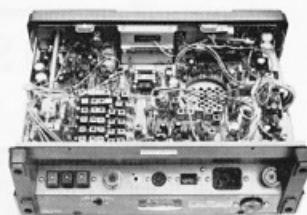
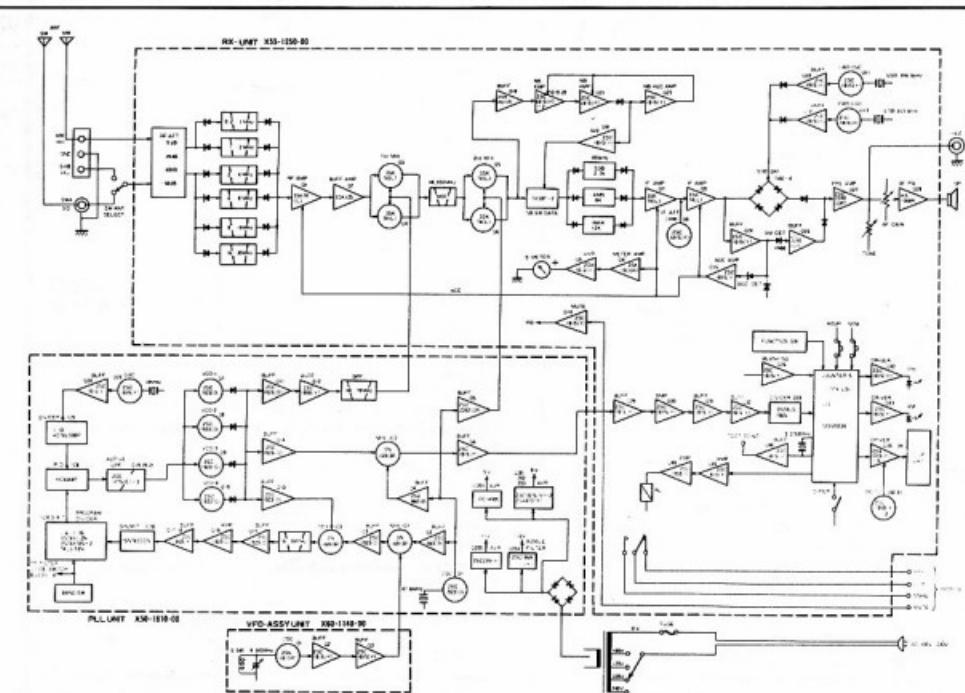


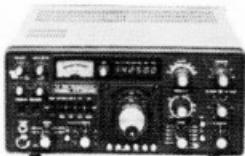
PHOTO 2: Rear view of the R1000. Note easy access to connections.

In conclusion, I am collecting all the old bottles I can find to rouse up a down payment on an R1000. Our test model was supplied by VICOM International of Melbourne and all enquiries regarding price and delivery should be directed to them. ■

FIGURE 1 (below): Schematic diagram of the R1000. Of special interest is the PLL synthesiser unit.



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| 103LBX, Medium Duty..... | \$164. |
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EQUIPMENT REVIEW:

THE YAESU FT-207R

Ron Fisher VK3OM

It is often said that good things come in small packages. The new Yaesu FT-207R is a hand held two metre FM transceiver and even for one used to using hand held equipment the 207R would have to be rated as very small. When it is considered just what this rig will do, the whole thing becomes quite remarkable. However, back to the beginning.



Two metre hand held transceivers go back quite a few years in the history of FM in Australia, but strangely cover only a very few models. Yaesu were rather late into the hand held field with the FT-202R announced a year or so ago. I am not certain if any of these were actually imported into Australia. These were six channel devices of apparently conventional electrical design with normal crystal control. Transmitter output was rated at one watt. The new FT-207R uses the same case but from there on, apart from the fact that they both operate in the two metre band there is very little in common. The FT-207R has more electronics built into its 68 x 181 x 54 mm case than almost any other mobile size package. Lets look at what it offers.

It has full microprocessor control with keyboard dial up frequency control. It covers the entire two metre band in ten kilohertz steps with a switch selected 5 kHz upshift. Four memory frequencies can be entered via the keyboard and scanning of either the four memories or the entire band is available with the scan stepping on either a busy or clear channel. Operating frequency is indicated with a LED readout and of course the usual 600 kHz offset for repeater operation can be selected with the function switch. In addition any other desired offset can be programmed into the system. Once a memory is programmed it is held even if the transceiver is switched off, for as long as the in-built nicad battery retains its charge. As the memory uses about 5 milliamps, this is limited to about 80 hours assuming no actual operation of the transceiver.

Transmitter output is rated at a generous 2.5 watts and on test actually produced just over three watts.

The FT-207R as supplied for test was complete with a nicad charger/AC adapter, external microphone/speaker, flexible antenna and adaptor to charge the battery when removed from the transceiver.

At least some of these are optional extras and it would be well to contact the distributors for all-up prices.

An interesting point is that the nicad battery is rated at 10.5 volts and the manual states that the transceiver should not be operated on a voltage in excess of exactly 12 volts. It would seem therefore that operation should not be attempted from a standard 12 volt car system which would rise to about 14 volts. Strangely, Yaesu do not have any sort of adaptor or regulator for such operation.

CIRCUIT DESCRIPTION

As could be imagined the little box contains a large number of semiconductor devices. There are in fact 31 transistors, 5 FETs, 10 ICs, 35 diodes plus 2 LEDs and a LED display. The receiver circuit is a standard double conversion with 10.7 MHz and 455 kHz IFs. However it comes as a surprise to find bipolar transistors in the RF and first mixer stages, but in practice sensitivity was first class.

The transmitter starts off at 10.7 MHz and is mixed directly with the 133.3 to 137.3 MHz output of the synthesized frequency control to produce the 144 to 148 MHz output. This same synthesized output is also injected into the received first mixer to convert the two metre signals to the first 10.7 MHz receive IF. Reference to the block diagram indicates the operation of the synthesizer and its control from the 4 bit microprocessor chip. An interesting point is that when the VCO is in an unlocked condition, voltage is removed from both the transmitter and receiver and the frequency display indicates 'E' for error condition. Transmitter output is switchable from the nominal 2.5 watts down to 200 mW simply by inserting a resistor in series with the voltage supply to the final and driver stages.

Diode switching is employed for transmit/receive changeover which allows for normal push to talk operation with the external microphone. A microswitch is employed in the PTT switch on the transceiver which gives very positive and light control.

PHOTO 1: Front view of the FT207R

THE YAESU FT-207R ON AIR

This is one transceiver where it is absolutely necessary to read the instruction manual before trying to go on the air.

The transceiver was used in turn by four experienced amateurs and all found that the set had unexplained "faults". However the fault turned out to be the operators' and not of the set. In each case the manual had not been fully digested. But back to the start with a look at the controls and their functions. The top panel has the volume/on/off, squelch, mode switch for simplex or repeater operation, a 3.5 mm socket for external earphone or speaker, a BNC antennal connector and a multi pin miniature connector for the external microphone speaker unit. On the front of the set is the frequency selection keyboard, the LED frequency readout, the two LEDs to indicate transmit condition and incoming receive signal. Three miniature slide switches select the 5 kHz up condition, frequency display off and keyboard lock. The two latter require some additional explanation. The display off switches the display off once a frequency has been selected after a three second delay. If a new frequency is dialed up the display operates again for three seconds. While scanning the display operates and switches off three seconds after scanning stops. The keyboard lock switch retains the dialed frequency even if a new one is dialed up either accidentally or purposely.

The remaining control, the transmitter power selector switch is mounted on the bottom of the case. Rather badly placed, not from an operational point of view but the set will not sit firmly when placed on a flat surface. Four small rubber pads would fix this and at the same time protect the table top from scratching.

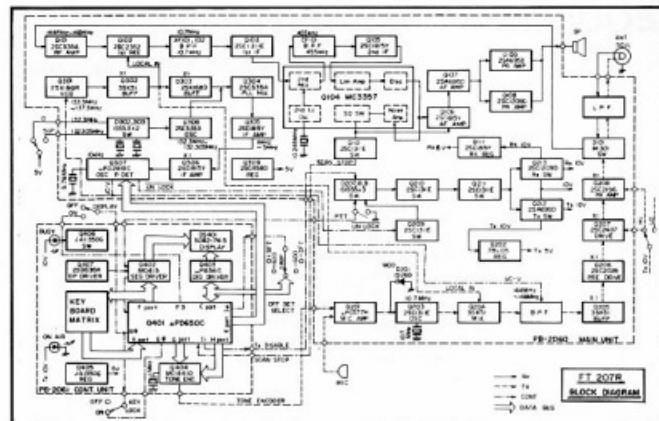
All operators testing the 207R found that small fingers would have been a decided advantage. Also good eyesight is handy to read the control designations. It's not a rig to use on a dark night unless you take a torch along. First few times the transceiver was operated without the external mike/speaker and transmit quality was clean but somewhat woofy in quality. It also appeared to have excess mike gain. Plugging in the external mike unit fixed all of these problems which indicates that the user would need to set the internal mike gain to suit either the internal or the external mike — one setting will not suit both. Another interesting point with the external mike/speaker unit is that when in use, the internal mike is muted but the internal speaker isn't.

Transmit capability with the flexible antenna was about as good (or bad) as other sets tested using these antennas. The radiation efficiency of stubby antennas seems dependent on just how much metal is under them to provide a ground plane, and most of these small transceivers just are not big enough. If you want to get out even into the local repeater a better antenna is needed.

Receiver sensitivity when checked against a selection of 2m FM units was as good and in fact the mute opened easily on very weak signals that would not open the mute on some of the others. The selectivity is designed for narrow band operation and the local channel eight repeater which tends to have rather wide deviation sounded somewhat distorted, however most local simplex signals were clean.

To get full use of all the keyboard facilities takes quite a bit of practice, hence my earlier remarks on unexplained "faults". It was discovered that changing the mode switch while the set was switched off produced some odd and unexpected results. This is covered in the instruction book, we just hadn't read it. The scanning position will either scan the whole band or the four memories. It is also possible to listen on one frequency and monitor a second frequency on a one second in five basis — very handy to listen to the local repeater while waiting for a friend to show up on simplex. The display shows the operating frequency at all times, so that if transmit repeater offset is selected, the readout will show the transmit frequency. Many synthesized transceivers with digital readout do not have this feature and continue to display the receive frequency when actually transmitting 600 kHz away.

The FT-207R was supplied with the optional NC-2 quick charger/AC adapter.



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OPTIONS FOR FT-207R

* NC-2 Quick Charger. * YM-24 Remote Speaker/Microphone. * Leather Carrying Case. * Extra NBP-9 Battery Packs.

SPECIFICATIONS: FT-207R

GENERAL

Frequency coverage:
144-146 or 144-148 MHz
(per local regulations)

Memory: 800 channels
Batteries: NiCd battery pack

Voltage requirement: 10.8

VDC at 10%, maximum

Current consumption:

RFX 150 mA (35 mA
squelched)*

TX 800 mA (HI), 250 mA

Low power: 100 mA

Mem. backup: Approx.

4 mA

Case dimensions:

68 x 181

x 54 mm HWD

Weight (with batteries):

880 g

* Display OFF

TRANSMITTER

Power output:
2.5 watt RF/200 mW RF

Intermediate frequencies:
1st IF = 455 kHz

2nd IF = 455 kHz

Sensitivity: 0.32 µV for

20 dB quieting

Selectivity: 7.5 kHz at

60 dB down

Audio output: 200 mW at

10% THD



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CALCULATION OF GREAT CIRCLE DISTANCES

C. K. Maude VK3ZCK
2 Clarendon St., Avondale Heights 3034

Over many years radio amateurs and others have tried to calculate the distance between two known points on the earth's surface using mathematical tables or slide rules. These methods can be quite time consuming and frustrating.

The basic equation used is

$$D = \arccos (\sin(\text{lat I}) \times \sin(\text{lat II}) + \cos(\text{lat I}) \times \cos(\text{lat II}) \times \cos(\text{lon I} - \text{lon II})) \cdot M$$

where —

lat I is the latitude of the first point and lon I is the longitude of the first point and lat II is the latitude of the second point and lon II is the longitude of the second point, all of these being in decimal degrees, and where M is the multiplier for kilometres, miles or nautical miles.

For those having scientific calculators, one of the programmes shown here can be used. There are programmes for fully programmable types and simple models, for reverse polish notation and for algebraic models.

The only information that is required to obtain the great circle distance between any two points is the latitude and longitude of both points in degrees, minutes and seconds. The latitudes and longitudes must first be converted to degrees and decimals, remembering that 60 seconds make one minute and 60 minutes make one degree. Answers can be calculated in kilometres, miles, or nautical miles by using the appropriate value of M as shown.

For Kilometres use $M = 111.12$

For Miles (statute) 69.047

For Miles (nautical) 60.00

NOTE:

When longitudes are East change the sign to -ve.

When latitudes are South change sign to -ve.

If both are East or both are South no change is necessary.

Example:

Melbourne Airport: Lat 37 40 30, long 144 50 32.

Launceston Airport: Lat 41 32 45, long 147 12 49.

Lat I = 37.675, lon I = 144.842.

Lat I = 41.547, lon II = 147.214.

Distance: 475.72 km, 295.6 miles, 256.87 nautical miles.

Note that if only degrees and minutes are used the accuracy is still better than 0.5 per cent for this example. ■

LISTING OF PROGRAMMES

| CALCULATOR TYPE | | | | |
|-----------------|-----------------------------------|---------------------------------|---------------------------------|---------------------------------|
| RPN | | | Algebraic | |
| Step | HP45, HP35, HP55, etc. | Novus 3500, NS 4510 | With store — T159, etc. | With brackets — T125, etc. |
| 1 | Clear all functions | Clear all functions. | Clear all functions. | Clear all functions. |
| 2 | lon I ENTER | lon I ENTER | lon I — | lon I — |
| 3 | lon II — | lon II — | lon II = | lon II = |
| 4 | COS | COS | COS X | COS X |
| 5 | lat I COS X | lat I COS X | lat I COS X | lat I COS X |
| 6 | lat II COS X | lat II COS X | lat I COS = | lat I COS = |
| 7 | lat I SIN | STO CLR | STO CLR | + (|
| 8 | lat II SIN X | lat I SIN | lat I SIN X | lat I SIN X |
| 9 | + | lat II SIN X | lat II SIN | lat I SIN |
| 10 | ARC X COS or COS ⁻¹ | RCL + | = + RCL = |) = |
| 11 | M X | ARC COS or COS ⁻¹ | ARC COS or COS ⁻¹ | ARC COS or COS ⁻¹ |
| 12 | Answer | M X | X | X |
| 13 | | Answer | M = | M = |
| | | | Answer | Answer |

Calculator function and operation keys are shown in bold type.

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The M-65 is a complete Morse Code and RTTY system for the PET microcomputer. It is made up of two parts: the hardware and the software consists of one PC board which is connected to your rig and to your PET user port. No modifications are required to either your radio equipment or to the PET — everything plugs into existing jacks. No external power supply is required. The software consists of two computer programs — MORSE and RTTY — supplied on one audio cassette. Both pro-

grams are written in BASIC with machine language subprograms. Each requires 8K bytes of RAM. Program MORSE allows continuous speed adjustment from one to 100 words per minute in any of three modes of operation: Receive, Send, and Code Practice.

In addition, up to ten programmable message memories (2550 characters total) allow "brag tapes", pictures, etc. direct from the keyboard. A special feature allows sending the time automatically at the press of a single key!



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AGENTS**



**TU-170
AUTO START \$299**

TTL compatible connections for direct hook-up to the Felsher TU-170, also adaptable to other terminal units.

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State of the art design features make the TU-170 ideal for HF and VHF autostart operation at an unchallenged price.

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CW ELECTRONICS

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P.O. BOX 274, SUNNYBANK, QLD, 4109.**



80 METRE VERTICAL

M. N. O'Burton VK3WW
3 Maxwell St., Lalor, Vic. 3075

Here is a 23 foot antenna that is cheap, effective and easy to build. It is the answer for 80 metre operation when you can't erect a 136 foot flat-top.

The antenna is made from $\frac{1}{4}$ in. aluminium tubing for the lower section and part of the upper section, which is tuned by telescoping $\frac{1}{2}$ in. and $\frac{3}{8}$ in. tubing.

The loading coil is wound with 14 SWG enamel covered wire and is probably the hardest part of the whole project.

I mounted the antenna on a 30 foot Oregon pole and have the base of the antenna about 10 feet above the ground but there is no reason why it should not work with the base at ground level.

Using a wooden mast is an easy way of erecting a vertical, and providing it is insulated from the mast the antenna is not affected in any noticeable way.

I used a series of wooden blocks and shelf brackets to hold the vertical in place. Each block measured $4\frac{1}{2}$ in. x $2\frac{1}{2}$ in. x $\frac{3}{4}$ in. and had a $\frac{3}{4}$ in. hole positioned as shown in Fig. 1. 3 in. lengths of clear plastic tubing were then slid on to the aluminium tubing and positioned so as to insulate the antenna from the mounting blocks. Ordinary hose clips were used to hold the tubing in place once the blocks were mounted on the mast and the plastic tubing of course insulated the aluminium tubing from the hose clips.

If you have any trouble sliding the plastic on to the tubing, boil up some water and let the plastic lie in it for a few minutes; it softens very quickly.

The loading coil manufacture and mounting was the hardest part of the project, yet it seems quite simple at first. All you need is about 20 feet of 14 SWG wire, 3 pieces of perspex or similar insulating material, a coffee tin, a co-operative XYL, and lots of patience.

The aim is to finish up with a coil $4\frac{1}{2}$ in. diameter with 38 turns spaced to take up about 10 in.

My method was to carefully mark out the three pieces of perspex and then drill 38 holes in each, spaced one diameter of 14 SWG apart. Two perspex pieces measured 9 in. x 1 in. and the third 10 in. x 2 in., which provided the method of mounting to the mast. I also used two more pieces to join the two 9 in. x 1 in. pieces across the coil to stiffen the mounting. It is hard to put into words, but the photograph should get the message across.

I first close-wound the coil on a 4 in. diameter coffee tin. As soon as tension was released the coil expanded to $4\frac{1}{2}$ in. diameter.

The next job is the hardest. Starting from one end of the coil thread the three perspex spacers on to the coil. You cannot do this single-handed, so be nice to your XYL or recruit some unsuspecting local amateur to help you. An hour or so later you will have a nice coil and/or a divorce case pending—no matter, it's all in the cause of science or something.

GETTING IT ALL TOGETHER

Mount the stand-off blocks on the mast as shown in Fig. 2, being careful to keep the holes in line. Next mount the coil using the large perspex spacer as the mounting to the mast. Next slide the tubing into position and tighten the hose clips to hold it firmly in place.

Carefully bare the wire at each end of the coil and tin about $\frac{1}{8}$ in. Now wrap a couple of turns around the tubing at each end of the coil and solder the wire to a lug held in place by a self-tapping screw. Use the same method at the base of the antenna to connect to the coax socket.

TUNING

At this stage I should mention that my mast is hinged to an extended barge-board and can be easily tilted to horizontal. This is necessary as all adjustments are made by sliding the $\frac{3}{8}$ in. tubing at the top of the antenna.

I find the best method of getting any antenna on frequency is to use a noise bridge and a general coverage receiver. If you don't have a noise bridge you can buy or build one. A good article on building one appeared in AR for July 1971, with modifications in AR October 1971.

There are two reasons for using a general coverage receiver.

One is that your first try could well have the antenna out of band limits. Also most modern transceivers are too sensitive and selective and make finding the null hard work. In any case adjustments are small, say 1 in. or 2 in. at a time, so you have to be prepared to do a lot of climbing up and down the ladder.

I selected 3.6 MHz as centre frequency and SWR checks show a bandwidth of at least 50 kHz each side of centre.

The test of any antenna is how it works under all conditions. Previously I have used a G5RV in inverted V configuration, so I ran checks against this antenna. The table shows the results—generally over longer paths (200 miles or more) the vertical won every time.



Coil close-up showing construction detail

All verticals are noisier than horizontals and this one is no exception. However, the increase in noise was not too bad, perhaps because an inverted V has some vertical properties anyway.

It would be great to have an 80 metre dipole and a vertical but this isn't on for the average suburban block, so I think this vertical is quite an efficient antenna under the circumstances.

MULTI-BAND AS WELL

After satisfying myself that the vertical was working well on 80m I tried loading it on other HF bands.

I fed it through an aerial coupling unit (Willy Willy's Wonder, AR January 1977) and found I could load it quite well on 40m, 20m and 10m.

Of course on these extra bands it does not perform as well as a full size dipole, but is suitable as an emergency antenna capable of working all VK and ZL at least.

All things considered, this antenna is cheap, fairly easy to build and tune and performs well on 80m. With a little imagination it could be made to fit most houses.

No radials were used but an earth spike at the base is essential. My vertical is fed with 70 ohm coax because I had some available. It would probably perform better with 50 ohm and even better with a 2:1 RF transformer, so there is room for improvement if you have the bits and pieces available.

All soldered connections were covered with DENSO 510 tape to provide weather-proofing. This tape is covered in wax, which enables moulding by hand once it is wrapped around the tubing.

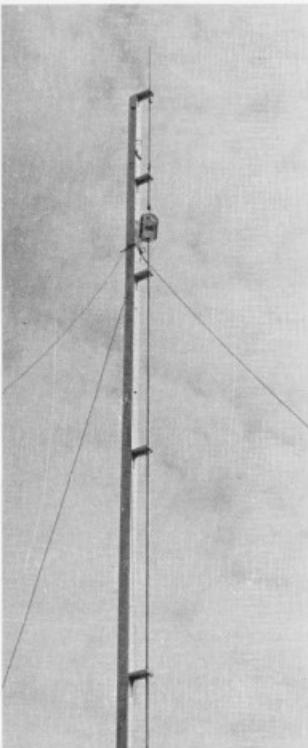
This article is written mainly for the amateur with limited space, and it is hoped that it will enable more amateurs to enjoy 80m operation.

TEST TABLE

| Distance | G5RV | Vertical |
|--------------------|------|---------------|
| 2-10 NM | 0 | + 10 dB |
| Melbourne-Sydney | 0 | + 2 S points |
| Melbourne-ZL2 | 0 | + 2 S points |
| Melbourne-Wagga | 0 | + 1 S point |
| Melbourne-Adelaide | 0 | + 1 S point |
| Melbourne-Hobart | 0 | No Difference |
| 20-200 NM | 0 | + 1 S point |
| 10-20 NM | 0 | + 2 S points |

C.A.R.E.

(Community Amateur Radio Events)



The 80 metre vertical

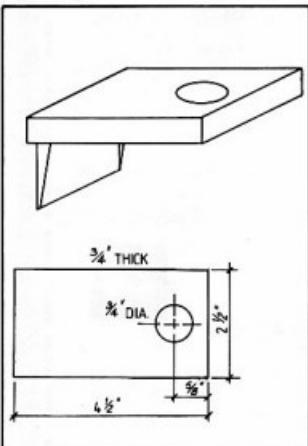


FIG. 1: Wooden blocks stand off construction.

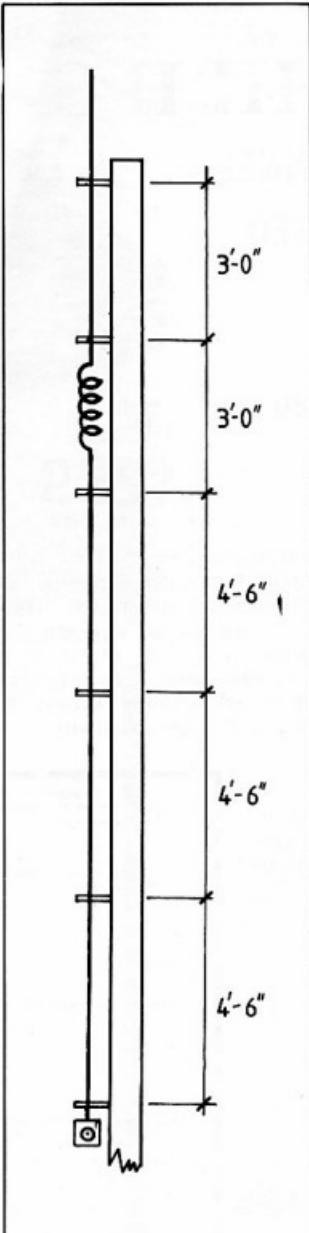


FIG. 2: Stand off mounting positions

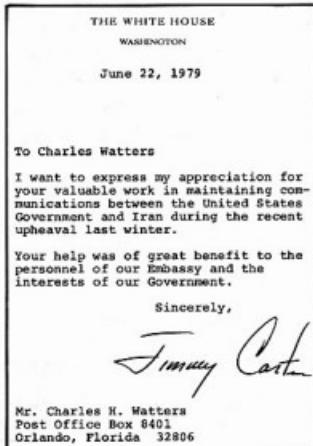
In times of emergency amateurs often provide the only communication link. One recent occasion was on February 15, 1979, when the US Embassy in Teheran was occupied by Iranian nationals. Charles (Chuck) Watter W4RHE had been keeping in touch with his sister and her family in Teheran via a local amateur. After the US Embassy's communication facilities were shut down Charles became the official relay station for the State Department in Washington and kept the link operating until the Iranian amateur station was closed down. The information passed via the link gave the US its only information in relation to the safety of its embassy staff during the initial stages of the occupation.

Letters of thanks from the White House and the House of Representatives were sent to Charles.

Charles, who from 1960 to 1962 held the call VK8TB, has been licensed for 31 years and welcomes VK QSOs and VK visitors.



Charles W4RHE (left) presented with letter
by Congressman Nelson



Letter signed personally by President
Jimmy Carter

THE PHILIPS FM321

A 70CM 40 CHANNEL
FULLY SYNTHESISED
AMATEUR RIG

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With these features ● 40 synthesised channels with electronic channel change and LED readout. ● Channel selection up or down from front panel or hand microphone. ● A LED each for power on, transmit and receive. ● 5 watt RF and 1 watt audio power. ● Combined signal strength and RF power meter. ● Single or two frequency simplex operation on any of the 40 channels. ● Instant selection of these modes plus any one nominated repeater channel. ● 5MHz TX/RX separation on repeater mode. ● PL259 antenna socket. ● 6 pole crystal filter combination for improved selectivity. ● High sensitivity.

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Frequency Range: TX 433.025MHz to 434.000MHz

438.025MHz to 439.000MHz

RX 438.025MHz to 439.000MHz

Frequency Stability: Better than 6ppm 0°C to +60°C

Supply Voltage: 11 to 16.2Volts-Ve earth

TRANSMITTER

Power Output: 5Watts

Spurious Output: -63db(out of band)

Audio Response: 6db/octave pre-emphasis

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Audio Output: 1.0Watt at 10% THD into 8Ω

Selectivity: 50db at ±25KHz

Sensitivity: 0.3uvpd (12db SINAD)

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PHILIPS

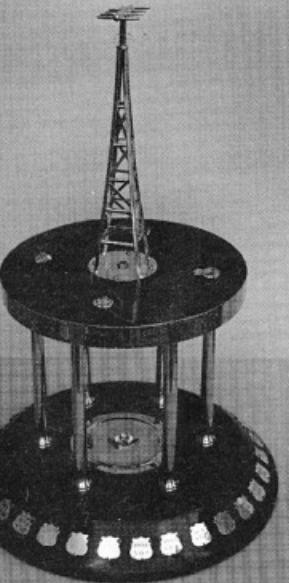


PHOTO 1: The much sought-after RD Contest Trophy — a reminder of those amateurs who became Silent Keys during World War II. (See page 27 for last year's results.)

QSP

10 GHz DX RECORD

According to Ham Radio of Oct. '79 a new 3 cm band record was set on 27th July by I4CHV/7 and I2FZD/2. The distance of 633 km was from a mountain top NE of Milan by the latter station to Testa del Gargano on the Adriatic Coast by the latter. Both used Gunnplexers and 1m dish antennas. ■

ALL AIRWAVES ARE NOT FREE

An article, so entitled, appeared in Oct. '79 QST and gives much food for thought. It is too lengthy to quote in full but deals with MDS (Multi-Point Distribution Service) systems in the 2.15 GHz region which are over-the-air relay systems for premium movies and other specialised TV fare received on a monthly rental basis and providing receiving system equipment typically around \$60 per installation) and interception of geostationary (common carrier programmed) satellites channels. ■

PHILATELISTS' NOTE

West Germany has issued a 60 pfennig WARC commemorative postage stamp which shows the front panel of a Collins KWM-2 transceiver tuned to the 21 MHz CW band. Plans for a separate amateur radio commemorative stamp have been dropped resulting from this issue. Ham Radio, Oct. '79. ■

HISTORIC "JUNK"

In his editorial to Oct. '79 Ham Radio Jim Fisk WIHR bemoaned his inability to attend an auction recently of surplus electronic equipment dating back to the 1920s built into custom-made wooden cases which were then in fashion. Most of the buyers, he said, were antique dealers who were interested only in the finely crafted cabinets — the priceless radio equipment inside was destined for the trash heap. He quoted another earlier opportunity missed for acquiring old gear for his collection from a sale of a local deceased amateur's collection of "junk" which filled four large warehouses. He recommends amateurs to talk to their heirs and clue them in as to what items, if any, belong in a museum. Put the details down in the will and give your executor the names of trusted amateur friends to help dispose of more modern gear at a fair market value as the equipment's value would be meaningless to most executors. ■

MARITIME EMERGENCY

The following is pieced together from articles in the Toowoomba Chronicle of 11th, 14th and 29th December, received from Steve St. George VK4SE, all acknowledged with thanks. Stephen Zadikovich with his wife Jenny VK4NXV/MM and his brother Gary set sail from Brisbane aboard the 32 ft. Toowoomba-built steel sloop "White Wave" in August '79 on a round-the-world trip. Daily skeds were kept between VK4SE and the sloop which ran into cyclone Albert some 500 miles south-east of Rodrigues Island in the Indian Ocean. Before the storm reached its peak on 3rd December, VK4SE received a relayed position faintly from the sloop and several other amateurs in Australia, South Africa and Mauritius joined in a listening watch. VK4SE also reported the details to "Marine Operations" in Canberra. The sloop was rolled four times during the storm. The life raft went overboard on the first roll, the mast went in the second capsize next day, but throughout the radio was saved and when dried out, Jenny was able to transmit Morse for a contact with a ZS station on 6th December using a makeshift antenna rigged up on 6th December. By that time the batteries were nearly flat, they had no fuel and no mast but were making two knots under jury rig. The ZS authorities were ready to mount a search and rescue operation but before they could act, clearance was required from Canberra. However the Mauritian authorities did act and the sloop made harbour for shipment to Toowoomba for repairs. All the occupants were safe and had returned home. ■

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- Brisbane -

The Company; a young energetic business with high growth possibilities in the area of Amateur Radio, Micro Computers and Commercial test and communications equipment.

POSITION 1 - Service Technician.

A qualified technician to manage our service centre. Previous experience in communications equipment and digital technology essential. A pre-requisite is an Amateur Radio licence and some sales experience an advantage.

POSITION 2 - Sales Engineer

To handle our quality range of products (as above). The market areas includes government and commercial bodies. A pre-requisite is an Amateur Radio licence or willingness to obtain one at the earliest opportunity. Some service experience would be an advantage. This position involves some travel.

Salary & conditions negotiable.

APPLICATIONS

Initial applications should be in writing stating work experience, qualifications and other relevant details.

*Mark Confidential
Att: Mr. Brian Beaumont*

CW ELECTRONICS

P.O. BOX 274, SUNNYBANK QLD 4109

Hooray for

(None of the Above)

Submitted by

Bruce Saxon VK3NSB
77 Edithvale Road, Edithvale, 3196

This concoction is dedicated to all those hard working amateurs who so generously give of their spare time to present courses and lectures to aspiring students of NAOCOP and AOCOP.

The idea was taken from the Educational Magazine, Vol. 36, No. 5, 1979, titled, Hooray for (None of the above).

The time is set as some time in the future.

I wasn't aware of the awesome changes sweeping through our educational system until I visited the Henry Radio School the other day and had a little chat with its Principal, Dr. Homer P. Dantic. "How are you?" inquired Dr. Dantic, shaking my hand. "(A) Just fine, (B) not too bad, (S) so-so, (D) not too hot, (E) at death's door?" "(A) thank you," I said, "and you?" "(B)" said Dr. Dantic. "But let me tell you I certainly was (D) last month when our Novice grade students scored in the thirty second percentile of the seventh stanine at the Novice grade level on the Standard Webley-Vickers Radio Theory Test." "Good grief," I cried, "What an indictment of your educational methods. Did you discover a solution?" "Well it was clearly a multiple choice problem," said Dr. Dantic. "Tell me, do you think we should have (A) purchased one of the 1156 other sample tests now on the market, with the hope that there would be at least one test that would make our faculty look good; (B) attempted to attract a better calibre of student through a recruitment programme; (C) drastically revised our teaching methodology; (D) burned down the school; (E) none of the above?" "Let's see," I said. "I think . . ." "Sorry, your time is up," said Dr. Dantic, clicking his stopwatch. "Actually, after much thought, we took the plunge and decided to (C)." "You mean you have drastically revised your methodology for teaching Radio Theory?" I asked. "No, we have drastically revised our methodology for teaching our students how to score well in multiple-choice tests," said Dr. Dantic.

"Would you like to see one of our new dynamic instructional modules in action?" I said I would, indeed. It was a most enlightening experience. The module we visited contained 32 students and Miss Ann Tenna, an enthusiastic young teacher. As we entered the room Miss Tenna was reviewing a homework assignment. "Who can tell me the name of the assistant who polished Marconi's ebony rod with catgut?" she asked. "Adrian?" "The name," said Adrian, "is (B)." "Very good, Adrian," said Miss Tenna. "Now, Peter, please tell the class the age of the pilot of the first communication satellite." "It is (D)," said Peter. "Wrong, wrong, wrong," shouted the class, "It is (E)."

Miss Tenna regained control and continued with the probing questions. "What is the square root of 15 712?" (Answer (C)) "Does Mr. Diode still work for Telecom?" (Answer (A)) And so the lesson continued.

"I didn't know you taught the historical aspect of Radio Theory," I remarked to Dr. Dantic. "We don't," he replied. "Then how can Miss Tenna test the students on it?" I asked. "She's not testing on that," explained Dr. Dantic, "She's testing their ability to take tests."

Well, I wish you could have seen the crackajack way in which those students performed. When Miss Tenna cried "Go!", all the students had their papers flipped over in a millisecond and their pencils flashing away as they ruled the little marks on the answer sheet. By the time Miss Tenna blew her whistle Peter was only half way down the page. Miss Tenna looked at him and sighed "How often do I have to tell you, Peter?" she admonished. "When you see that you won't have time to finish a test, simply slash a vertical line down the page, hitting as many boxes as possible. If each question has five alternative answers, you will thereby increase your score by an average of 20 per cent. Adrian will you read your answers to the class?" "Yes," said Adrian, "(B), (B), (B), (B), (B) . . ." "I take it you answered (B) to every question," interrupted Miss Tenna. "Can you tell us why?" "Simple," said Adrian, "I recognised the format of the Hispano-Suza Multiphasic Norm-Referenced Scholastic Evaluation Test. I immediately recalled that the computer readouts we studied last week indicated (B) was the correct answer 28.8 per cent of the time in Hispano-Suza multiphase, as compared to 16.9 per cent for (A), 18.3 per cent for (C), 19.7 per cent for (D) and only 16.3 per cent for (E)." "Very good," said a beaming Miss Tenna. "Class dismissed."

Miss Tenna's admiration for Adrian was echoed by Dr. Dantic when we were out in the corridor. "Adrian is the brightest student we've had here at Henry Radio School in years," he said. "He has already single handed raised our faculty performance record 1.3 per centiles on the Standard Webley-Vickers Intermediate Placement Test. And thanks to his score of 799 on the Academic Aptitude test, he will move directly to AOCOP classes next year." "Most impressive," I said. "Yes," he said, "We are predicting a brilliant academic future for this young chap as he seeks the answers to those all-important questions." "In which facet of amateur radio would he specialise?" I asked. "Multiple-choice testing, of course," he replied. ■

WESTERN ZONE CONVENTION

Jack Thomas VK3NTR

1 Stevens Crescent, Ararat 3377

The Annual Convention of the Western Zone of the Wireless Institute, Victorian Division, was held at Halls Gap on the 10th and 11th of November 1979 and was a great success. The Saturday venue was held with a dinner at the Mountain Grand Guest House with 94 attending. Guest of honour was the President of the Victorian Division, Mr. Eric Buggee VK3ZZN and his lovely wife, with many visitors from many parts of Victoria and interstate visitors.

Sundays venue was slightly marred by an opening of the heavens but this was only a minor setback as the proceedings were carried out in the Halls Gap Hall. Forty-six ladies plus a couple of wandering OM's took advantage of the day to have a memorable sightseeing tour of the Halls Gap area.

Trade exhibits were excellent and many an amateur left with an empty pocket. Imark, Vicom, Wecam, Hamilton Electronics and the Moorabbin Club contributed to the draining of funds and provided excellent displays of various gear.

The convention was a unanimous success and many people have pledged to return to the Halls Gap area again, independent of any conventions. I wish to thank sincerely all those who attended and those whose help effort made the convention worthwhile. Special thanks to Sylvia Rose and her son and the trophy donors for the various events. We hope those who attended left satisfied and those who could not attend can make it to our next convention. ■



PHOTO 1: Jack VK3NTR congratulates Gordon VK3NO (right) who won the lucky entrance, Brian VK3ZBS looks on.



PHOTO 2: Laurie VK3NDL (c) presents Jack VK3NTR with an award.

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 LDM 815 TR Dip Meter — \$89.00
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 IA 31 Ham monitoroscope adapter — \$26.00
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 TS520S YG3395 Kenwood — \$57.00
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 MK701 Manipulator (side-swiper) — \$45.00
 PALOMAR 1C Keyer — \$149.00

Jaybeam Antennas

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| 5Y/2m | 5el 2m, 7.8 dBd gain, length 1.6 m — \$43.00 |
| 8Y/2m | 8el 2m, 9.5 dBd gain, length 2.8 m — \$51.00 |
| 10Y/2m | 10el 2 m, 11.4 dBd gain, length 4.4 m — \$84.00 |
| 10XY/2m | 10el 2m, cross yagi, 11.3 dBd — \$114.00 |
| DB/70cm | Twin 8el, 70 cm, 12.3 dBd 1.1 m — \$64.00 |
| PBM 18/70 | 18 el, 70 cm, 14.9 dBd 2.8 m — \$96.00 |
| MBM 48/70 | 48el, 70 cm, 15.7 dBd 1.83 m — \$83.00 |
| MBM 88/70 | 88el, 70cm, 18.5 dBd 3.98 m — \$105.00 |
| PMH/2C | Phasing harness — \$20.00 |
| 8XY/2m | 2m cross yagi, 8el, 9.5 dBd, 2.8 m — \$99.00 |
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| 203BA | 3 el beam 20 m — \$199.00 |

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|------|--|
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| TS120S | Solid state 100w — p.o.a. |
| TS120V | Solid state 10W — p.o.a. |
| TS180S | Solid state 10W — p.o.a. |
| R-1000 | Communications Receiver — \$498.00 |

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| 747 | Vicom Aircraft Scanner — \$199.00 |
| 210 | Bearcat 210, scanner — \$469.00 |
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| IC701 | HF transceiver — \$1199 |
| IC280 | 2m Remotable — \$450 |
| IC251A | 2m All-mode — \$847 |
| IC551 | 6m 10 watts — \$799 |
| IC551D | 6m 100 watts — \$850 |
| IC255A | 2m Digital — \$425 |
| IC502A | 6m portable — \$289 |

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Typical operating characteristics:

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|--------------------------|--------------------------|-------------------------|
| Power consumption | 40VA | 40VA |
| Motor | 24V split phase | 24V split phase |
| Rotation time (approx) | 50 sec | 64 sec |
| Rotating torque | 500kg/cm | 600kg/cm |
| Braking Torque | 2000kg/cm | 4000kg/cm |
| Vertical load | 200 kg | 200 kg |
| Weight | 4.5 kg | 4.6 kg |
| Cable | 6 core | 6 core |
| PRICE: (cable \$1 per m) | \$189.00 | \$259.00 |



Available from your VICOM dealer

Authorised dealers throughout Australia

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 Crows Nest
 Ph (02) 436 2766

↓ Brisbane 48 6601
 ↓ Perth 321 3407
 ↓ Adelaide 43 7981

↓ Head Office and Mail Orders:
 68 Eastern Road,
 St Kilda Vic. 3205.
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 Telex 36935



ANNOUNCING A NEW COMMUNICATIONS COMPUTER!



TONO

THETA 7000E

**NEW IMPROVED MODEL
FEATURING
STACKS OF EXTRA TRICKS!**

The new Theta 7000E has all the features of the popular 0-7000, plus a lot more! Now every Amateur can enjoy the visual display of CW, RTTY, and ASCII in both transmit and receive modes. Just connect the TONO to any TV set via the antenna terminals or to a page printer from the parallel port provided. Bring up your CW speed in receiving or sending by either watching receiver-sent or from recorded cassettes.

SOME OF THE OUTSTANDING FEATURES:

THETA 7000E COMMUNICATIONS COMPUTER

Due to the most up-to-date computer technology, just one piece of equipment can now handle both transmitting and receiving in CW, RTTY and ASCII.

VHF and Composite video output provided:

Both home TV set and video monitor outputs are provided for display purposes.

Printer interface.

Centronics compatible interface enables easy connection of a low-cost dot printer for hard copies.

Wide range of transmitting and receiving speeds.

10 communication speeds for transmitting (with automatic CW speed adjustment on receive) and 8 communication speeds for transmitting and receiving in RTTY and ASCII. The multiple speed feature makes the Theta-7000E ideal for Amateur, business and commercial use.

Built-in demodulator for high performance.

Three-step shift (either 170Hz, 425Hz, 850Hz) can be obtained in High Tone and Low Tone by the switch. Manual adjustment is available by FINE TUNING control.

Crystal controlled modulator.

A transceiver with AFSK function can transmit in RTTY mode by utilising the high stability crystal-controlled modulator controlled by the computer.

Command and ASCII key arrangement.

The keyboard layout is the same as a regular typewriter and automatic insertion of LTR/FIG code makes operation a breeze.

Large capacity display memory.

The two-page display memory contains 32 characters x 16 lines per page. Page selection is operated via the keyboard.

Split-screen.

With a keyboard command, the same page can be divided in two; the upper half for transmit and the lower half for receive. Sentences can be edited whilst receiving.

Automatic Transmit/Receive switch.

The transmit/receive switch is controlled by the microprocessor. (Manual operation is also available). Built-in remote control key function controls the transmit/receive switch of the transceiver.

Anti-noise circuit.

A new noise circuit prevents garbled messages when there is no signal.

Battery backed-up memory

Data in the battery-backed-up memory is retained when the external power source is removed. The Theta-7000E has provision for 64 characters x 7 channels in the non-volatile memory. Data in this memory can be repeated 1-9 times from a keyboard instruction. Every channel can read out continuously. The channel number in use is displayed on the screen.

SEND function

The SEND function sends the whole data displayed on the screen, including the stored data in channels with an instruction from the keyboard. The message can be stopped and easily restarted.

Buffer memory.

A 53-character-buffer-memory is displayed on the 17th and 18th lines on the screen. The characters move to the left erasing one by one as soon as they are transmitted. Data in the channels can be displayed in the buffer.

Rub out function.

Mistakes can be erased whilst the information is still in the buffer memory. If the mistake has already been sent correcting code will be transmitted.

Simultaneous access of the memory.

Whilst receiving, it is possible to write into the channel memory and the buffer memory from the keyboard. Whilst writing from the channel memory or the screen it is possible to write into the buffer memory.

Pre-loading function.

The buffer memory can momentarily store data and release it on an instruction from the keyboard.

Channel No., Page No., and Case No.

Channel No, Page No, and Case(FIG/LTR) in RTTY are displayed in the 17th line of the screen.

CR (Carriage return) or LF (line feed) cancel function.

When receiving CR or LF, they are replaced by = (equal) and (underline) respectively for effective use of the screen.

Cursor control function.

Full cursor control (up/down — left/right) is available from the keyboard.

WORD MODE operation.

Characters can be transmitted by word groupings.

Automatic CR/LF

While sending, CR/LF are automatically inserted once every 72 (60 or 80) characters.

Echo function.

With the echo function, received data can be read and sent out at the same time. A cassette tape can be used as the source data.

WORD-WRAP-AROUND function.

On transmission mode word-wrap-around prevents the last word of line from splitting in two. On instruction from the keyboard, the same AFSK signals as used in RTTY are transmitted in ASCII mode.

CW Identification function.

Keyboard controlled CW identification is available if required.

MARK-AND-BREAK (SPACE-AND-BREAK) system.

Either mark or space tone can be used to copy RTTY.

Monitor circuit.

A built-in monitor circuit with an automatic transmit/receive switch enables checking of the transmitting and receiving state. In receive mode it is possible to check the output of the filter circuit.

CW specific function.

The Theta-7000E reads data from the key and displays the characters on the screen.

Variable CW weights.

For CW transmission, weights (ratio of dot to dash) can be changed within the limits of 1.3-1.6.

Cross-pattern checking output terminal.

Provision has been made for attachment of an oscilloscope to aid tuning. This supplements the running LED and audio monitor provided in the system.

Log-computer output provided.

The Theta-7000E has an output terminal for connection to a log-keeping computer.

Test message function.

"RY" and "QBF" test messages can be repeated with this function.

VICOM Back-up

Supported by VICOM 90 day warranty and technical service.

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No digital display, easy to use on the move without looking.

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22 programmable channels — 11 popular ones already done and 11 for you to program to your own choice.

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Full reverse at a flick of a switch.

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The ICOM name is synonymous with reliable communications, as thousands of happy owners will confirm.

* COMPLETE

Comes complete with mic, mobile mounting brackets, dc lead and comprehensive instruction manual. Backed by Vicom 90 day warranty.

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The IC22S uses a FET front end and high-Q helicalised cavity resonators. Signal gain of 90dB or more up to second mixer.

* PROGRAMMABLE DIODE MATRIX

It's easy to add extra channels. Just solder in the diodes!

SIMPLY THE BEST!

Typical Technical Characteristics

General: (Australian Model). Number of semiconductors. Transistors 41. FET 7. IC 13. Diode 33 (Except Matrix Board). Frequency Coverage: 145-148 MHz. Antenna Impedance: 50 Ohms unbalanced. Power Supply Requirements: DC 13.8V \pm 15% Negative Ground. 2.5 A Max. Current. Maximum Transmitting Apparatus: Net Weight: 1.5kg. Max. Audio Output: 1W. Squelch Switch Apparatus: 0.4A. Dimensions: 500mm (H) x 150mm (W) x 235mm (D). Weight: 1.5kg. Operating Voltages: Installed: R1-8, 40, 50, 51. Transmitter: Transmitting Frequency: 22 Channels in the 2m Band. Programmable by a diode matrix for any channels on 25KHz spacing. Emission Mode: 16F3. Output Power: 10W. Max. Frequency Deviation: 5KHz. Modulation System: Variable

reactance phase modulation. Spurious Emission: More than 60dB below carrier. Microphone Impedance: 600 Ohms. Input level: 10mV typical. Dynamic or optional Electret condenser microphone. Reception: Receiving Frequency: 22 Channels in 2m Band. Modulation Accuracy: 16F3. Reception: Double Superhet. Intermediate Frequency: First IF 45MHz, Second IF 455kHz. Sensitivity: Less than 0.5uV for 20dB Noise Figure. More than 30dB S+N/D+N/D at 1 uV Squelch Sensitivity. Selectivity: $\pm 7.5\text{kHz}$ at the -6dB point. $\pm 15\text{kHz}$ at the -60dB point. Audio Output Power: More than 1 Watt. Audio Output Impedance: 8 Ohms.

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Check it out at your VICOM dealer.

AMATEUR SATELLITES

R. C. Arnold VK3ZBB

OSCAR 7

Efforts to maintain AMSAT OSCAR 7 on its old schedule of operation have been successful in recent months. For those who may not remember, Mode A operates on odd days of the year with Mode B on the even days. Wednesday is experimental day on Mode X.

The tentative launch date of the British UOSAT Amateur Satellite is 13th September, 1981.

Probably the most "up to the minute" and comprehensive notes on satellite activity are found in the newsletter of the Mode "J" Club. I can only repeat some snippets from this newsletter as they are rather dated by the time they appear in AR, but I am sure many OSCAR fans must have qualified for membership of the Club and could receive their own copy — details have been published in recent editions of these notes.

Congratulations are due to Larry Roberts W9MXC, the editor of Mode "J" Newsletter, for a job well done.

Have you ever thought of exchanging your AMSAT membership during a satellite contact? If you work a station not possessing a membership number, give details of AMSAT and suggest he should join this elite organisation. The same suggestion goes for Mode "J" contacts.

LOOKING AHEAD

1980 May — AMSAT Phase III satellite.

1980 Sometime — Two more Russian Amateur satellites.

1981 September — UOSAT.

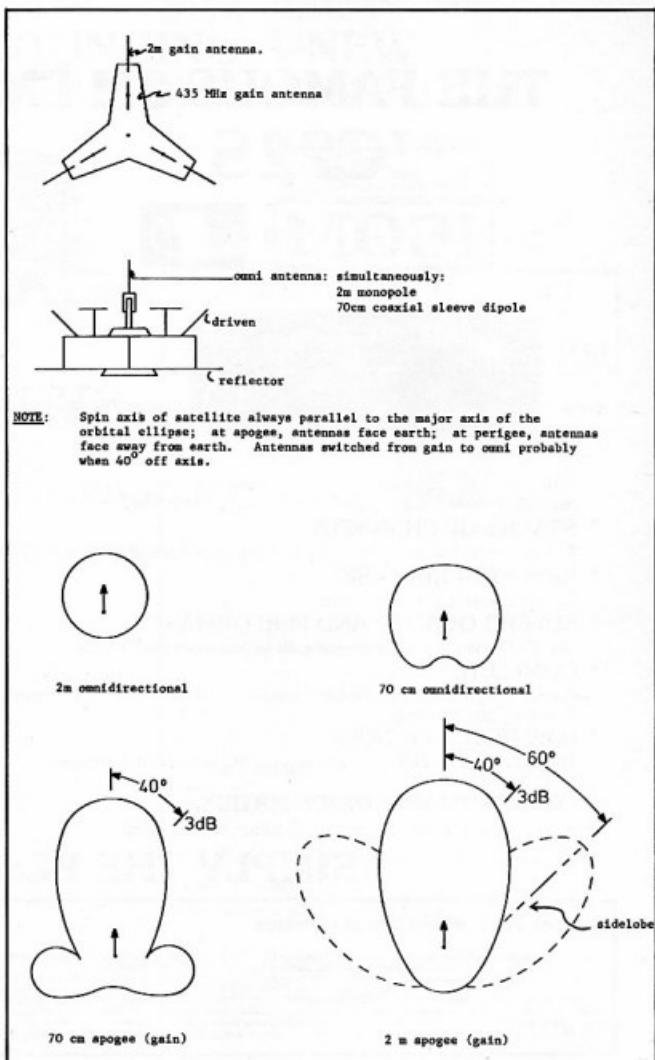
1984 A French Amateur Satellite is expected to be launched from Kourou in French Guiana on an Ariane Mission. It will probably carry two transponders, one on Mode J (up 145 down 435 MHz), the other with uplink 435 MHz and downlink 1260 MHz (this seems to conflict with the latest WARC information — Bob).

Do you realise the AMSAT OSCAR 7 has completed five years of operation? It is interesting to note that the prime load with which AO7 was launched only lasted about 1½ years.

OSCAR IN THE CLASSROOM

Bill Magnusson VK3JT who is vitally interested in the use of amateur satellites for educational purposes, has agreed to act as Phase III OSCAR Education Programme Co-ordinator in Australia. Bill has asked me to include the following notes:

"With the imminent launch of Phase III and the general upturn in interest in VHF, UHF and satellite communication, an attempt will be made in 1981 to tie together the very considerable educational possi-



SCHEMATIC 1: Spacecraft antenna placement and pattern AMSAT OSCAR Phase III-A.

bilities of the AMSAT programme in this country.

"I have been asked to act as education co-ordinator and one of my first priorities will be to compile and distribute a register, hopefully as complete as possible, of all school-based radio clubs or groups with an interest in the amateur satellite programme. A considerable amount of in-

formation of interest to such groups is already available from AMSAT and ARRL and I will be in a position to disseminate this and to act as a central source for collection and distribution of such information. I will also be making approaches through the various State education departments for advertising space in gazettes and journals and through standing com-

mittees in the physics, general science and electronic practices areas. I'm sure many secondary schools have radio clubs. Many such clubs are run by or have available a licensed radio amateur. I will be trying to show these clubs that it really is quite easy to become involved in OSCAR and that the educational spin-off is immense. It should be well within the grasp of even the most modest club to take part.

"Should anyone reading this feel they could contribute or require information, or would like to be placed on a register, they could write to me, care of Footscray Technical School, Ballarat Road, Footscray, Vic. 3011".

The following updated information on AMSAT OSCAR Phase III-A has been received from Steve Place WB1EYI and should be of value to those contemplating monitoring this satellite:

"AMSAT OSCAR Phase III-A, as all previous OSCAR satellites, will receive a numerical designator once it successfully achieves orbit. At that time it will be referred to as either AMSAT OSCAR X (probably AMSAT OSCAR "9") or AMSAT X (AMSAT 9), NOT OSCAR X. The proper abbreviation will be A-O X (probably A-O 9).

The latest updates on the projected orbital parameters (these figures are still tentative) are shown in Table 1.

Revised Maximum access time

The projected maximum access time has changed. Given the new period of about 10 hours and 28 minutes, a station at 30° N latitude, for example, will have about 9½ hours of continuous access. This, of course, would be for the ideal pass for a particular station at this latitude; stations at different latitudes will have differing times. Also, certain orbits may not be accessible at all. Apogee latitude will very gradually shift North, increasingly favouring higher N latitudes, and access times for a given location will change. Eventually, apogee drift will swing south and occur over the equator and below, favouring S latitudes.

Rate of change in apogee latitude

Immediately after firing, the projected initial latitude of apogee will be about 24.8° N lat., and of perigee will be about 24.8° S lat. The rate of change of apogee, and perigee, latitude (drift) will not be constant. The initial argument of perigee (angle in the orbital plane from the line of nodes to perigee — measured counterclockwise) will be about 210°; its rate of change will be constant at about 0.07° per day.

To determine the change in the latitude of apogee and perigee, use the following relationship (angle of inclination = 57°) (Wo = argument of perigee)

$$\text{perigee latitude} = \arcsin((\sin i) \times (\sin WW))$$

For example, ten days after firing, assuming the projected values are correct, the argument of perigee will have changed to:

$$210^\circ + (10 \text{ days} \times 0.07^\circ/\text{day}) = 210.7^\circ$$

and from this, we calculate that perigee will occur at:

$$\begin{aligned} \text{perigee lat.} &= \arcsin((\sin 57^\circ) \\ &\quad \times (\sin 210.7^\circ)) \\ &= -25.35^\circ ("—" means S lat., \\ &\quad \text{apogee is "+" or N}) \end{aligned}$$

In other words, in ten days, perigee will occur about 0.5° further South, and apogee 0.5° further North. Again, the rate of change of the argument of perigee is constant, the rate of change of apogee/perigee latitude is not.

Firewheel — the primary payload

AMSAT OSCAR Phase III-A will ride piggyback, or as the secondary payload aboard the European Space Agency Ariane LO2 mission. The primary payload is an experiment called Firewheel which will be mounted atop what ESA calls the "CAT" or Application Technology Capsule. Phase III will be mounted below Firewheel, affixed to the side of the CAT. Firewheel comprises a series of cannisters, arranged around the top circumference of the cylindrical CAT, containing explosives, lithium, barium and other compounds. When exploded, these will form a visible, "glowing", steam-like cloud, enabling scientists to study the patterning of the earth's magnetic field. Phase III will be clear of the experiment before the explosive charges are fired.

Transfer orbit bulletins

During the transfer orbit, AMSAT engineers will make precision ranging measurements to determine the actual orbital parameters as accurately as possible for the critical kick motor calculations. One-way bulletins

will occasionally be transmitted near apogee to explain the status of the mission, but the satellite will not be available for general use until a short time after firing. All are urged not to interfere with this work.

Special Service Channels

In included in the Phase III bandplan are six SSCs; the correct sequencing, placement, focus and co-ordinators follow:

| | |
|--------|-------------------------------------|
| L1 | Scientific (formal, scheduled) N1DM |
| | 17 kHz up from General Beacon |
| L2 | AMICON (computer) WA2LQQ |
| | 21 kHz up from General Beacon |
| L3 | NTS (formal, record CW traffic) |
| K1XA | 25 kHz up from General Beacon |
| H1 | CW/RTTY Bulletin, CW Practice |
| W1EH | 17 kHz down from Engr. Beacon |
| H2 | Education (schools and ham) |
| WB1EYI | 21 kHz down from Engr. Beacon |
| H3 | Phone Bulletin (international) |
| G3IOR | 25 kHz down from Engr. Beacon |

All SSCs are 4 kHz wide. Send all comments, inquiries and suggestions to the co-ordinators via AMSAT headquarters.

General Beacon format

The General Beacon, located at about 145.81 MHz, will contain much useful information. Each hour will be formatted the same so that listeners will know exactly when to listen to get the information they need.

A suggested format appears in Table 2.

TABLE 1:

| Parameter | Transfer Orbit | Final Orbit |
|--|-------------------|--------------------|
| inclination | 17.5° | 57° |
| apogee altitude | 34,385 km | 34,385 km |
| perigee altitude | 200 km | 1,500 km |
| argument of perigee | 190.587° | 210° |
| drift rate (arg. of per.) | 0.7838°/day | 0.07°/day |
| anomalous period | 603.78 minutes | 628.8 minutes |
| perigee latitude | about 3.2° S lat. | about 24.8° S lat. |
| weight of spacecraft: 75 kg (165 lbs.) | | |

TABLE 2:

| Time | Interval (minutes) | Duration (minutes) | Content |
|------|--------------------|--------------------|------------------------------------|
| T0 | 0-1 | 1 | CW i.d. and preamble |
| T1 | 1-3 | 2 | basic orbital data |
| T2 | 3-6 | 3 | CW telemetry data |
| T3 | 6-21 | 15 | CW bulletin board |
| T4 | 21-26.5 | 5.5 | RTTY rescan of above |
| T5 | 26.5-30 | 3.5 | CW telemetry |
| T6 | 30-31 | 1 | CW i.d. and preamble |
| T7 | 31-33 | 2 | basic orbital data |
| T8 | 33-36 | 3 | CW telemetry data |
| T9 | 36-51 | 15 | CW bulletin board |
| T10 | 51-56 | 5 | RTTY week's orbits |
| T11 | 56-60 | 4 | fill to the hour with CW telemetry |

CW code speed will be 15 words per minute.

Telemetry formatting

With previous OSCARs, telemetry was transmitted as raw data — numbers that were in themselves meaningless and which had to be "translated" by equations or graphs into meaningful data such as voltages and currents. Phase III, however, will transmit meaningful data that has been processed in its flight computer. During the 3 minute telemetry transmissions, 20 channels out of a possible 64 will be sent in a five number format. The first two digits will be the decimal channel number, followed by the three digit value. The user will look up a given channel number in a table in which he will be told where to place the decimal point and what the unit of measurement is. For example, 32498 would be channel 32 (decimal) with a value of 498. From the table, you would find that the value should be multiplied by 0.1 and was a measure of watts: transponder power out. The transponder was putting out 49.8 watts (this is strictly an example and channel assignments may change).

AMSAT calling frequency: 28.880 MHz (no scheduled activity but excellent source of information if individuals are monitoring. All are encouraged to check in).

The following diagrams illustrate the antenna arrangements on AO Phase III-A together with their patterns for 70 cm and 2m.

OSCAR 8 orbital parameters are forever changing and it has been difficult to predict what they may be at the time of

publication of these notes. It is surprising what a significant effect 10⁻¹ seconds per orbit has when estimating times some 2½ months ahead. The predictions for February are submitted with "fingers crossed" and I hope they will turn out to be reasonably accurate — at least any inaccuracy should be consistent. ■

ORBIT PREDICTIONS — FEBRUARY 1980

OSCAR 7

OSCAR 8

| Date | Orb. No. | Eqx Z | Eqx *W | Orb. No. | Eqx Z | Eqx *W |
|------|-------------|----------|-----------|-------------|----------|-----------|
| 1 | 23845 | 0119 | 87 | 9728 | 0046 | 53 |
| 2 | 23857 | 0018 | 72 | 9742 | 0050 | 54 |
| 3 | 23870 | 0112 | 86 | 9756 | 0053 | 55 |
| 4 | 23882 | 0012 | 70 | 9770 | 0056 | 56 |
| 5 | 23895 | 0106 | 84 | 9784 | 0100 | 57 |
| 6 | 23897 | 0005 | 69 | 9798 | 0103 | 58 |
| 7 | 23920 | 0100 | 82 | 9812 | 0107 | 58 |
| 8 | 23933 | 0154 | 96 | 9826 | 0110 | 59 |
| 9 | 23945 | 0053 | 81 | 9840 | 0113 | 60 |
| 10 | 23958 | 0147 | 94 | 9957 | 0117 | 61 |
| 11 | 23970 | 0047 | 79 | 9968 | 0120 | 62 |
| 12 | 23983 | 0141 | 93 | 9982 | 0124 | 63 |
| 13 | 23985 | 0040 | 78 | 9998 | 0127 | 64 |
| 14 | 24008 | 0135 | 91 | 9910 | 0130 | 64 |
| 15 | 24020 | 0034 | 76 | 9924 | 0134 | 65 |
| 16 | 24033 | 0128 | 90 | 9938 | 0137 | 66 |
| 17 | 24045 | 0028 | 75 | 9952 | 0141 | 67 |
| 18 | 24058 | 0122 | 88 | 9965 | 0001 | 42 |
| 19 | 24070 | 0021 | 73 | 9979 | 0004 | 43 |
| 20 | 24083 | 0116 | 87 | 9993 | 0008 | 44 |
| 21 | 24095 | 0015 | 72 | 10007 | 0011 | 45 |
| 22 | 24108 | 0109 | 85 | 10021 | 0015 | 46 |
| 23 | 24108 | 0109 | 85 | 10021 | 0015 | 46 |
| 23 | 24120 | 0009 | 70 | 10035 | 0018 | 46 |
| 24 | 24133 | 0103 | 84 | 10049 | 0021 | 47 |
| 25 | 24145 | 0002 | 68 | 10063 | 0024 | 48 |
| 26 | 24158 | 0056 | 82 | 10077 | 0027 | 49 |
| 27 | 24171 | 0151 | 95 | 10096 | 0031 | 50 |
| 28 | 24183 | 0050 | 80 | 10105 | 0034 | 51 |
| 29 | 24196 | 0144 | 94 | 10119 | 0038 | 51 |

QSP

CW REQUIREMENT

The editorial in Oct. '79 QST seeks expressions of opinion by U.S.A. amateurs that there should be no change in Article 41 of the ITU Radio Regulations. This is the article dealing with the Amateur Service. The ARRL makes it clear that no change should be made to this Article — a position maintained by ARRL for some years. Despite this, the FCC proposed that the Morse Code requirement below 144 MHz be eliminated. "We change which is not wanted in the Amateur Radio Service. It affects, and we don't like it". "Nearly everyone is concerned over the possibility that one of the strengths of the Amateur Radio Service would be eroded if these rumours are true". Well, as everybody now knows, WARC 79 dropped the minimum frequency requirement for morse code to 30 MHz from 144 MHz.

INDUCTION COOKING RANGES

An article in Oct. '79 QST draws attention to a new technological development in cooking appliances to come onto the market soon. AO at a frequency between 20 and 40 kHz is circulated in a coil under a smooth ceramic cooking top. When an iron pot is placed on the top (which is in an induction field of these coils) an current is induced in the pot causing it to become hot and cook the food within it. It is stated that the induction range is much more economical and there is no danger of fire from oil spillage because the ceramic cooking top remains cold, moreover it is easy to clean, being smooth. However, these ranges are a potential source of serious RF interference and the FCC in the U.S.A. has adopted regulations from 1.2.1980 which will apply to any induction cooking range using a frequency of 10 kHz or higher. Before any such range is put on the market certification is required that it meets certain radiation and conduction limits. ■

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1979 REMEMBRANCE DAY CONTEST RESULTS

WINNER – VK5 DIVISION

Golubitsky

- a. Full call logs received
 - b. Full call licences issued (31 March 1979)
 - c. Total points score
 - d. Percentage participation of full calls
 - e. Trophy score ($\frac{a}{b} \times c + \frac{d}{b} - e$)

The following details show the section and the points scored:-

YK1 GW

| | | | | |
|----|------|-------|----|------|
| PG | 1408 | CDR | 98 | PM |
| DH | 928 | RP | 86 | 8SU/ |
| DA | 442 | RC | 82 | DS |
| FT | 372 | 8GG/P | 80 | JI |

卷之二

| |
|---------------------|
| VK1 PHONE |
| GB 2604 RK 170 RP |
| JN 1945 AC 165 KA |
| TD 1864 ZBJ 162 BP |
| DA 1449 NCE 166 XII |

DA 1349 NCP 156 XU
NAY 1156 NAO 153 XV

| | | | | |
|-----|------|-----|-----|-----|
| GM | 1057 | ZAR | 148 | KP |
| NBM | 1029 | AVM | 131 | NCE |
| KB | 947 | ACA | 116 | AYL |
| DV | 940 | ZCB | 113 | ZAH |
| MX | 751 | DS | 112 | PM |
| NBK | 736 | ZWP | 95 | RJ |
| NAT | 726 | MF | 94 | NAL |
| BR | 625 | JJ | 63 | VP |
| PC | 621 | BH | 60 | NRE |

HC 601 BN 69 NBP
KV 601 DB 58 II

| | | | | |
|-----|-----|-------|----|-------|
| NAS | 575 | EF | 52 | NCP |
| NCL | 565 | EP | 52 | LF |
| FT | 558 | ZAG | 52 | ZT |
| RH | 514 | YS | 50 | DH |
| AW | 481 | 8GG/P | 37 | 8DB/P |
| RM | 471 | CDR | 23 | WI |
| NCN | 471 | 8SU/P | 10 | BC |
| NAM | 453 | ML | 9 | NBS |

1990 1991 1992 1993 1994

VK1 RECEIVING

LF0062 G. J. Berger
J. Galaz

J. Galea
L10016 K. Ray

SX 1214 IC 248 BYF

| | | | | |
|-----|------|-----|-----|-----|
| AQF | 1116 | ZC | 222 | BCC |
| EL | 892 | DBA | 220 | NAW |
| CBF | 822 | ABB | 212 | DEW |
| QL | 810 | NMX | 158 | ASY |
| BAT | 718 | VM | 152 | BHM |

ЧИСЛО ВИНОГДА

VK3 RECEIVING

| | | | |
|----------------------|-------|-------|-----|
| L30042 E. Trebilcock | ..... | ..... | 788 |
| L31203 P. Barclay | ..... | ..... | 694 |
| N. Blake | ..... | ..... | 579 |

| VK4 CW | | | | | | |
|--------|------|----|-----|----|----|--|
| LV | 1276 | UA | 408 | OD | 78 | |
| KX | 1242 | XA | 386 | XJ | 76 | |
| GH | 608 | LT | 280 | OY | 40 | |
| HH | 608 | JH | 200 | ZA | 32 | |
| ARC | 462 | UC | 186 | | | |

VK4 PHONE

NOD 17
SWIZ 16

| | | | | | |
|-----|------|-----|-----|-----|----|
| WTZ | 199 | UG | 315 | OH | 95 |
| AMH | 1262 | NAP | 315 | UJ | 94 |
| ADA | 1254 | OX | 305 | NVS | 94 |
| YG | 1258 | RP | 305 | AEK | 95 |
| AYL | 1236 | AEM | 287 | AF | 87 |
| NOP | 1215 | NUI | 298 | NCY | 81 |
| NOI | 1199 | AMJ | 282 | NOB | 81 |
| KW | 1177 | UC | 258 | RE | 75 |
| NFU | 1084 | ABG | 240 | ABB | 74 |
| APG | 1084 | EG | 240 | BB | 74 |

DEF

| | DEC | SCE | WVA | T10 | KD | 919 | FE | 212 | ZM | G | 62 |
|--------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| VK3 CW | | | | | DO | 853 | NOC | 211 | AHD | MU | 58 |
| | | | | | CI | 808 | NMB | 208 | MU | MU | 58 |
| XB | 1178 | AMC | 378 | YL | 134 | AAK | 787 | HB | 205 | PJ | 58 |
| AEW | 1060 | AJB | 345 | ARB | 128 | TE | 783 | ACB | 201 | ZBZ | 54 |
| YF | 788 | ANL | 322 | AOK | 98 | AKT | 769 | UA | 193 | FU | 52 |
| FC | 786 | MJ | 304 | NEA | 80 | NJU | 757 | VT | 191 | HZ | 52 |
| YK | 638 | AMG | 290 | ABA | 76 | BK | 758 | NQ | 189 | AAU | 52 |
| DG | 578 | BOO | 244 | BKU | 58 | QA | 728 | NXK | 188 | IE | 49 |
| BDH | 518 | LV | 220 | AFW | 54 | OZ | 718 | EH | 174 | NV | 48 |
| JL | 480 | RJ | 180 | FA | 24 | FN | 714 | MA | 169 | ALD | 47 |
| VF | 438 | SV | 178 | BYA | 22 | PS | 695 | NJB | 157 | QY | 47 |
| | | | | | AMO | 604 | NHO | 156 | NMR | 40 | |
| | | | | | ARD | 603 | NVM | 150 | NRI | 37 | |

VF

| VK5 CW | | | | VK5 RECEIVING | | | | | | | | VK5 | | | |
|---------------|------|------|-----|---------------|-----|------------------|---------------|-------|-------|------|--|--|-----------|------|-----|
| UM | 1254 | NLC | 300 | KQ | 84 | R. Whifford | ..... | ..... | ..... | 2890 | ZZ | 143 | NAD | 59 | |
| BN | 1016 | OR | 216 | ZX | 84 | R. A. Cunningham | ..... | ..... | ..... | 535 | JG | 139 | ZPB | 58 | |
| OR | 558 | OO | 154 | AU | 66 | L50340 | ..... | ..... | ..... | 344 | NXB | 135 | IC | 54 | |
| FM | 558 | RT | 180 | JG | 66 | BBC30785 | D. Nelson | ..... | ..... | 344 | NFR | 137 | RP | 49 | |
| SW | 804 | FX | 174 | PK | 52 | R. Dayman | ..... | ..... | ..... | 246 | NJX | 136 | ZBY | 36 | |
| XO | 656 | ABB | 130 | NJQ | 52 | D. Warrington | ..... | ..... | ..... | 112 | NGR | 124 | AX | 35 | |
| LI | 654 | KU | 116 | KL | 48 | L50122 | G. Edmeades | ..... | ..... | 85 | PS | 224 | ZLB | 26 | |
| HO | 385 | RG | 94 | NMQ | 36 | | | | | | NOA | 201 | ZAJ | 26 | |
| VK5 PHONE | | | | VK5 CW | | | | | | | | VK5 | | | |
| QX | 2562 | VV | 349 | ZHR | 114 | RS | 826 | PD | 318 | BD | 34 | FT | 178 | AQ | 18 |
| GH | 2123 | ASA | 347 | NAQ | 111 | RU | 792 | RM | 292 | JK | 28 | YY | 165 | ZAO | 15 |
| MM | 1987 | ZAT | 345 | WI | 109 | ED | 842 | GW | 246 | FI | 12 | NRJ | 149 | ZJG | 13 |
| KX | 1856 | OL | 343 | WIE | 107 | VK | 486 | NFA | 104 | AWI | 12 | CF | 146 | CT | 12 |
| WV | 1697 | ABW | 338 | NRO | 107 | AJ | 470 | GA | 66 | XP | 10 | NDA | 146 | ZAK | 12 |
| LP | 1388 | NEB | 333 | ZJJ | 105 | AO | 2047 | FC | 420 | GL | | NKD | 73 | RR | 12 |
| NTB | 1347 | NLS | 324 | SE | 104 | AD | 2047 | TP | 502 | KY | | IL | 68 | GB | 5 |
| ARC | 1345 | NCD | 316 | EQ | 103 | IC | 1673 | EO | 401 | ZLZ | | | | | |
| NX | 1278 | ZCM | 316 | DJ | 102 | YX | 89 | EV | 523 | ZCB | 163 | L70107 | G. Mutton | 2226 | |
| ABP | 1275 | NAJ | 314 | ACE | 102 | ED | 100 | PD | 264 | AN | 520 | | | | |
| ZH | 1263 | NHB | 314 | DF | 100 | NBU | 2863 | EB | 523 | ZCB | 163 | | | | |
| DV | 1152 | AZ | 312 | XL | 99 | PP | 2644 | EB | 503 | NCZ | 145 | | | | |
| OU | 1100 | NHO | 309 | NJS | 99 | JP | 2276 | HU | 505 | DA | 141 | | | | |
| AGO | 1080 | NDG | 307 | VB | 97 | FS | 2214 | EB | 503 | NCU | 133 | | | | |
| DK | 1089 | ZBI | 304 | EC | 96 | NFI | 2111 | TP | 502 | JD | 104 | | | | |
| NN | 1084 | AJJ | 301 | NTC | 95 | RG | 2054 | LP | 493 | YD | 127 | | | | |
| BI | 1081 | LQ | 300 | US | 94 | AO | 2047 | FC | 420 | GL | 125 | | | | |
| TY | 1057 | RV | 294 | AZM | 94 | MF | 1771 | EO | 401 | ZLZ | 120 | | | | |
| ZK | 1017 | VG | 294 | NON | 94 | ER | 1744 | NEY | 401 | JD | 104 | | | | |
| FD | 968 | ZE | 284 | NCY | 94 | YL | 1721 | FI | 400 | AWI | 94 | | | | |
| LZ | 932 | ZF | 278 | HU | 93 | IC | 1673 | YG | 398 | AT | 87 | | | | |
| DR | 928 | NBG | 275 | YX | 89 | ED | 1633 | RL | 393 | NDK | 87 | | | | |
| TS | 921 | NTK | 274 | NCH | 89 | KG | 1147 | BD | 375 | NHR | 83 | | | | |
| NJE | 914 | SW | 271 | PP | 87 | NQA | 1145 | SH | 374 | NDY | 83 | | | | |
| ADD | 887 | NPRZ | 269 | EP | 87 | WV | 1053 | XC | 362 | NE | 75 | | | | |
| DI | 845 | NPF | 269 | EP | 86 | GW | 1041 | GA | 342 | OK | 73 | | | | |
| NNC | 839 | NXY | 266 | NOC | 84 | UN | 872 | OX | 337 | WI | 72 | | | | |
| XT | 833 | ZPE | 263 | NPG | 84 | IW | 858 | YE | 336 | YM | 71 | | | | |
| AIC | 837 | ZVK | 262 | NJQ | 83 | NGC | 334 | WZ | 68 | JM | 750 | AB | 468 | | |
| EN | 745 | NCE | 251 | AP | 81 | UT | 834 | CN | 322 | SO | 63 | | | | |
| XZ | 723 | OM | 246 | NWP | 81 | NQR | 831 | LV | 321 | ZKI | 60 | | | | |
| NOF | 719 | ABS | 241 | ZEH | 79 | WT | 810 | NAG | 289 | GI | 59 | | | | |
| NKA | 716 | NGP | 241 | KX | 77 | NFA | 810 | ZIT | 288 | LN | 59 | | | | |
| SN | 698 | AKS | 237 | ZJ | 77 | XJ | 801 | CR | 270 | ZC | 56 | | | | |
| LN | 694 | OT | 234 | ZSV | 77 | DY | 800 | HE | 259 | GB | 55 | | | | |
| SU | 688 | UW | 222 | GF | 75 | ZP | 754 | ZZ | 256 | NCG | 55 | | | | |
| AMW | 668 | ZZ | 220 | GG | 72 | JX | 748 | UX | 244 | NEA | 55 | | | | |
| BW | 654 | ADC | 219 | NJT | 72 | UH | 243 | ZHU | 44 | ZL | CW | | | | |
| IN | 642 | NMY | 208 | NOK | 71 | JK | 711 | NGB | 220 | FM | 41 | | | | |
| KR | 623 | ARV | 205 | IR | 70 | PG | 627 | BE | 219 | LG | 35 | 1GQ | 1576 | ZBD | 176 |
| NDN | 615 | EF | 200 | UE | 70 | FE | 610 | TU | 216 | NGJ | 32 | 2AJB | 184 | 2MM | 100 |
| FO | 576 | HN | 198 | OC | 68 | WL | 599 | QR | 211 | JY | 17 | | | | |
| ATW | 571 | NVV | 194 | YQ | 66 | VG | 592 | DC | 198 | ML | 15 | | | | |
| QN | 568 | ZRJ | 193 | NGK | 64 | YP | 588 | NGX | 179 | XO | 12 | | | | |
| ZJG | 554 | RI | 188 | NHA | 64 | NDA | 588 | ZCU | 11 | 9NPS | 4360 | 9EJ | 1358 | | |
| NCL | 551 | SG | 182 | KE | 63 | NHK | 578 | ZGA | 176 | 9DJ | 2010 | 9NDC | 157 | | |
| VK5 RECEIVING | | | | VK5 CW | | | | | | | | VK5 | | | |
| ZG | 539 | PG | 177 | IQ | 60 | F. H. Price | ..... | ..... | ..... | 1702 | P2 CW | 9EJ | 474 | | |
| OI | 533 | AQ | 175 | YW | 59 | L60030 | D. Robson | ..... | ..... | 1635 | LATE ENTRIES | | | | |
| FX | 528 | AVQ | 174 | ARX | 59 | L60036 | K. Dean | ..... | ..... | 770 | VK — ZHC, 2AGZ, 2AUX, 300, 3ANM, 3APP, 3NHA, 3NNX, 4DT, 4LP, 4MS, 4OT, 5FM, 5MS, 5UB, 5NJW, 5NSL, 6MU, 6SM, 6NGO, 6NHX, 6ZGO. | | | | |
| CGR | 528 | YV | 173 | ZAR | 58 | L60036 | L. Baxter | ..... | ..... | 367 | | | | | |
| NJ | 510 | LC | 171 | NKC | 58 | L60228 | G. Mann | ..... | ..... | 283 | | | | | |
| NLV | 499 | NB | 157 | NRA | 57 | L60228 | J. Greenaway | ..... | ..... | 183 | | | | | |
| GL | 492 | NKW | 167 | VU | 55 | L60228 | D. Handscombe | ..... | ..... | 174 | | | | | |
| NPC | 488 | ZJE | 156 | CA | 54 | | | | | | | | | | |
| NBY | 482 | RK | 161 | HW | 54 | | | | | | | | | | |
| NBJ | 472 | NSA | 157 | UX | 52 | | | | | | | | | | |
| ATM | 470 | VE | 156 | ZKK | 50 | | | | | | | | | | |
| LM | 447 | ZBC | 156 | NCC | 43 | | | | | | | | | | |
| NMO | 445 | HM | 150 | AWI | 42 | | | | | | | | | | |
| NXT | 434 | KH | 149 | NIC | 42 | | | | | | | | | | |
| IZ | 429 | NGQ | 149 | ZU | 37 | | | | | | | | | | |
| NCB | 427 | NEH | 145 | AC | 36 | | | | | | | | | | |
| BP | 410 | NGC | 144 | OF | 36 | | | | | | | | | | |
| NCK | 407 | NSW | 142 | ZIS | 35 | | | | | | | | | | |
| SS | 402 | NNE | 142 | NSI | 29 | | | | | | | | | | |
| LL | 400 | EV | 140 | QV | 28 | KJ | 1885 | NHA | 713 | JT | 815 | COMMENTS FROM CONTEST MANAGER | | | |
| NHG | 399 | RR | 139 | AKR | 33 | NJD | 1847 | NDP | 711 | RM | 506 | Participation in the annual "Friendly" Contest was well up with 1988 valid logs received. | | | |
| IT | 396 | ZQ | 137 | ZAP | 33 | KZ | 1711 | MK | 707 | AK | 494 | The new formula has been applied and for statisticians the difference between first and second is only 25 average logs, and between first and third 26 average logs and if they were from Novice and Limited entrants. | | | |
| ND | 379 | ZB | 136 | BTP | 32 | KH | 1630 | EB | 575 | NRT | 464 | The new formula has been applied and for statisticians the difference between first and second is only 25 average logs, and between first and third 26 average logs and if they were from Novice and Limited entrants. | | | |
| NEN | 379 | WN | 134 | KT | 26 | HD | 1429 | SB | 661 | JA | 458 | Some Divisions did not take advantage of the separate phone and CW logs being counted as two entries for column (a). Also for the first time SWL logs counted for their respective divisions. | | | |
| NWT | 378 | NRO | 133 | JG | 26 | NRC | 1060 | JU | 655 | PF | 452 | Some confusion was caused due to the misprinting of the rules and also the late delivery of July 79 Amateur Radio in some States, but the majority of participants entered into the spirit of the "Friendly" contest. | | | |
| AIM | 376 | BG | 129 | RG | 26 | NVH | 1038 | NJC | 644 | NPK | 440 | | | | |
| EA | 359 | NCK | 129 | OX | 25 | NRN | 961 | BC | 630 | NPL | 438 | | | | |
| FL | 359 | OZ | 128 | RN | 23 | GD | 961 | BC | 630 | NPL | 438 | | | | |
| XI | 359 | JK | 125 | NCS | 23 | NSA | 955 | EM | 612 | HV | 436 | | | | |
| NHM | 358 | TW | 125 | ZTA | 22 | AW | 899 | WI | 612 | EJ | 421 | | | | |
| NVD | 358 | WO | 124 | TD | 20 | NRH | 884 | OH | 596 | LZ | 412 | | | | |
| ALM | 358 | NAT | 124 | ZGZ | 20 | NPC | 878 | NHT | 575 | SF | 404 | | | | |
| NTU | 358 | NMS | 122 | IX | 11 | KC | 800 | BH | 572 | BM | 358 | | | | |
| DH | 355 | YY | 121 | RT | 7 | NEA | 784 | NPV | 559 | NW | 347 | | | | |
| NDW | 349 | NV | 121 | KH | 746 | NPY | 539 | SS | 533 | | | | | | |

Log presentation has improved dramatically this year ably supported by some divisions distributing well designed front sheets to entrants.

Especially noteworthy was an entry from Frank VK2ZI who is totally blind. His log was a verbal one on tape and I was delighted to be able to score his entry for him. All but one contact was through an Oscar satellite.

From my own observations during the contest there was a very friendly atmosphere evident but this did not flow through with all entrants! The comments and threats I received, with a small minority of logs, showed some amateurs in a very poor light. I cannot accept any blame where an entrant fails to read the rules before entering a contest.

I will, however, apologize for being a little late with the results but I was absent from Orange due to work commitments for the best part of three months from September.

The 1980 "Friendly" contests will be even better and bigger than before and I am looking forward to an even larger number of entries. Thank you for supporting your divisions and the memory of those who paid the supreme sacrifice. ■

NOVICE NOTES

BEWARE THE SWR METER

For many years standing wave ratio has been the yard (or is it metre) stick when antennas are discussed. This has been accentuated since the advent of CB. Many CBers would be happy with a piece of wet string if it showed an SWR of 1.1 at the end of a 50 ohm line.

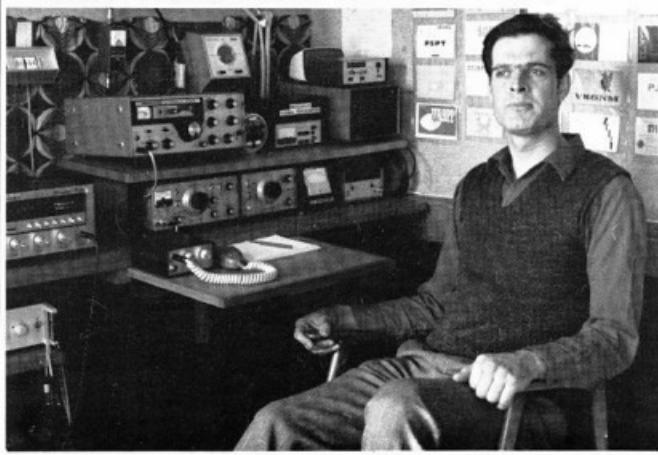
The only thing that an SWR meter will tell you is how close the match between the feeder line and the antenna feed points is, it will not necessarily tell you if the antenna is resonant. If the antenna feed point happens to be the same as the impedance of the feeder line, the SWR meter will give you the right answer, i.e. that the antenna is resonant.

However, in practice, the antenna may have anything but the right feed point impedance. Indeed the rule is generally that it is not. Let us consider the quarter wave vertical for a moment fed with 50 ohm coaxial cable. With a very good ground plane, this antenna will have a feed point impedance of about 35 ohms at resonance. This will exhibit an SWR of 1.4 to 1. Often the SWR is lower, around 20 ohms or so resulting in an SWR of 2.5 to 1. Altering the length of the antenna to get the SWR down will shift its resonant frequency and decrease its efficiency.

You will ask: what about losses due to high SWR? A study of chart in the ARRL Handbook in the chapter on transmission lines showing losses against SWR, will reveal that the SWR has to be quite high, 6 to 8 to 1, before these losses will cause concern.

Your next question is: how else do I do it if I can't trust my sacred SWR meter? The answer lies in three instruments. The

THE MAN BEHIND THE MICROPHONE



first is a tape measure. If you are erecting an 80 metre dipole, measure it, first of course, find the correct length and here again, there are charts in ARRL Handbook. The second instrument is that sadly neglected field strength meter. After all, you are only really interested in making your antenna radiate the best signal strength that can be achieved. The lowly field strength meter will do just this, indicate the relative radiation directly on the meter — and with no ifs or buts.

The third instrument is an antenna impedance bridge. This will tell you two vital values — the resonant frequency and the feed point impedance of your antenna. There are a couple of instruments on the market for about the same price. The Palomar RX noise bridge is the better of the two as it will also give the inductive or capacitive reactance of the antenna. With this instrument we can also determine the impedance.

Submitted by
Dennis Breitkreuz VK4ZEW/NMK ■

CQDX GROUP REFORMED

Owing to internal problems the CQDX Club has been reformed. Irresponsible and selfish behaviour on the part of a minority of the members, and the fact that the hams in the group have now found that they have little in common with the CB element, caused the whole concept of the club to be reviewed.

It must be pointed out that though the CBers in the club were amongst the most responsible of the members, there was little to offer them once those who wished to attain amateur status had done so.

MAN BEHIND THE MICROPHONE

Many stations recently worked VK2DFM alias Konrad HB9ARO on his recent visit to Australia. Konrad hails from a small village in the eastern part of HB9 near Lake Constance and the Austrian border. He is QRV with an FT200 and tri-band beam on 10-15-20 metres and on RTTY with a modified model 25 teleprinter. Konrad enjoys activity on VHF and UHF with 15W SSB into a 10 element yagi on 2 metres and on 432 MHz using a 28/432 MHz transverter into a 19 element long yagi. ■

We have issued a new certificate and an honorary committee comprising VK3NDY, NNR, NOA, NNY, NAC, VEW, VGQ, NDO.

So far these amateurs are the only members of the new club. Three or four former members are being approached to rejoin, and a couple of others have been ex-cluded.

The group is now strictly an amateur DX group. I am acting as honorary secretary but there are no other official officers and no dues other than THE WILLINGNESS TO CO-OPERATE WITH EACH OTHER.

The new rules are simple . . . go all out for DX by all means, but never forget to help others whilst you are doing it. The code set down by Paul M. Segal still applies.

In short . . . give your mates a go . . . an old Australian tradition that seems to be less in evidence these days.

From Trevor C. Reid VK3NNR. ■

VHF-UHF

An expanding world

Eric Jamieson,
VK5LP



Forreston, S.A. 5233

AMATEUR BAND BEACONS

| Freq. | Call Sign | Location |
|---------|-----------|----------------------|
| 50.005 | H44HIR | Honduras |
| 50.008 | PY1IRO | Brazil * |
| 50.010 | HL5TQG | Seoul * |
| 50.023 | HH2PR | Haiti |
| 50.025 | 6V5RC | Jamaica |
| 50.030 | ZS6PW | South Africa * |
| 50.035 | ZB2VHF | Gibraltar |
| 50.036 | HCIJX | Quito |
| 50.038 | KL7CDG | Anchorage * |
| 50.038 | FYTHV | French Guiana * |
| 50.040 | ZS6VHF | Edenvale |
| 50.040 | WABRMHZ | San Diego |
| 50.048 | VE6ARC | Alberta |
| 50.050 | K6FV | San Francisco |
| 50.050 | ZS3E | South West Africa |
| 50.050 | ZS6LN | South Africa * |
| 50.050 | VE6NAB | Alberta |
| 50.055 | WA9FEF | Illinois * |
| 53.060 | PY2XB | Sao Paulo |
| 50.065 | WB5ZRL | New Orleans * |
| 50.073 | WT7KMA | Arizona * |
| 50.075 | HK3J/4 | Columbus (repeaters) |
| 50.080 | WIAW | Connecticut |
| 53.080 | TI2NA | Costa Rica |
| 50.088 | VE1SIX | New Brunswick |
| 50.090 | WA5JRA | Los Angeles * |
| 50.093 | WA8FTB | Ohio |
| 50.098 | K7H1Z | Arizona * |
| 50.100 | ZS6VHF | South Africa * |
| 50.101 | FO8DR | Tahiti |
| 50.103 | NBAJD | Ohio * |
| 50.104 | WA5QI | Pearl Harbour |
| 50.110 | KG5JGJ | Guam |
| 50.110 | JD1YVA | Micronesia Island |
| 50.110 | KGERO | Alaska * |
| 50.110 | ALTC | Anchorage * |
| 50.458 | SB4CY | Cyprus |
| 51.002 | ZL1BPW | Auckland * |
| 51.999 | YJ8WPV | New Hebrides |
| 52.100 | VK0BC | Casey Base |
| 52.150 | VK5SK | Wagleyes * |
| 52.200 | VK8RV | Darwin |
| 52.300 | VK5RTV | Perth |
| 52.350 | VK5RTU | Kalgoorlie |
| 52.400 | VK7RTN | Launceston |
| 52.440 | VK4RTL | Townsville |
| 52.450 | VK2WI | Sydney |
| 52.500 | JAI2GY | Nagoya |
| 52.500 | ZL2VHF | Palmerston North |
| 52.510 | ZL2MHF | Mt. Clime |
| 52.800 | VK6RTW | Albany |
| 52.900 | VK5RTT | Carnarvon |
| 53.000 | VK5VF | Mt. Lofti |
| 144.010 | VK2WI | Sydney |
| 144.400 | VK4RTT | Mt. Mowbullan |
| 144.475 | VK1RTA | Canberra |
| 144.500 | VK6RTW | Albany |
| 144.600 | VK5RTT | Carnarvon |
| 144.700 | VK3RTG | Vermont |
| 144.800 | VK3VF | Mt. Lofti |
| 144.900 | VK7RTX | Ulverstone |
| 145.000 | VK6RTV | Perth |
| 145.100 | ZL1VHF | Luckland |
| 145.100 | ZL1VHW | Wilkatana |
| 145.200 | ZL1VHF | Wellington |
| 145.250 | ZL1VHP | Manasseh |
| 145.300 | ZL1VHF | Christchurch |
| 145.400 | ZL1VHF | Dunedin |
| 432.400 | VK4RBB | Brisbane |
| 432.475 | VK7RTW | Ulverstone |
| 433.000 | ZL2UHF | Wellington |
| 433.150 | ZL1VHF | Waikato |
| 433.200 | ZL3UHF | Christchurch |

433.250 ZL2VHF — Manawatu
10370 ZL2UHF — Wellington

* Denotes attended operation.

No changes to the beacon list this month, other to include the attended operation beacon provided by David VK5KK. This has been heard over a wide area on 52.150 MHz, currently it is signing VK5KK with FSK, about 25 watts to a 3 element beam pointed north, and is located at Wasleys about 60 km north of Adelaide, at David's QTH.

There are a number of other attended beacons operating in the U.S.A. but I don't propose listing these unless important. Full time beacons will be given priority in the very large list now being provided.

The correct frequency of the Geelong beacon when in operation will be 52.330 MHz, call sign VK3RGG. According to the Geelong ARC Newsletter, the frequency was determined with the WIA "Band Plan" in mind, which has been so arranged for beacons to operate between 52.3 and 52.5 MHz. The second figure after the decimal point is to indicate the State, e.g. VK3RGG on 52.330, the second 3 represents VK3. VK2 would be 52.32, VK7 52.37 etc.

NEWS FROM HONG KONG

Also from the Geelong ARC Newsletter is news of a recent QSO between Mike VK3ASQ and Tony VS3ES on 10 metres during which the following information was obtained: The Hong Kong allocation is 53.050 to 51.150 plus 52.025 + 10 kHz (CW) and 52.100 + 10 kHz (SSB). Power: Max. 133.3 watts PEP (50 watts AM). VS6FX runs low power to a GP aerial. VS6BF 50.110 low power. VS6EZ calls CQ (Voice via VOX) for 1 minute, listens for ½ minute when conditions are good, and monitors 28.490 MHz when on 6 metres.

NORTHERN HEMISPHERE ON SIX

Bill W3XO sends a lot of information from his column in QST re six metres. Despite the approaching winter in the north, the band seems to have remained open almost continuously to exotic places. What follows is a condensed version of Bill's information, which is too vast for this column!

"What took place between 15-10 and 15-11-79 as this is being written, will remain as outstanding records for 20 years ago. Started 18-10 when W3XO worked JAs. A big day was 20-10 when VE1ANX lists 14 OWS, via the 28-40 MHz route to Europe, as well as a two-way contact with E12W, confirming he was still able to use 50 MHz. On 21-10 WB2WIK worked 22 stations in Europe crossband, including SM7PU with Gs and DLs making the rest. It has been noted as a result of these contacts that the strongest signals on 10 metres are not necessarily the strongest signals on 6 metres!"

"But that was only the beginning! Almost daily a path existed to Europe from about 1300Z, followed a few hours later with transcontinental openings right across U.S.A., E12W and ZB2BL are the only ones on 50 MHz in Europe, and these have worked right across U.S.A. to W6! Not bad for a barefoot FT820B! Active European countries include G, GM, GW, DL, EI, ZB2, SM, LA, HE, PAO, OK and EA. 5B4CY beacon heard, but no sign of SB4AZ.

"Another beacon that has been driving everyone crazy is that of FYTHV in French Guiana. The 50.038 MHz FSK signal from this station has been received many mornings, to over S9, but the operator is seldom available for contacts. Other than to HCIJX, north-south contacts have been rare, thus HP2XPW (KZ5NW) failed to work all U.S. states before departing the Canal Zone on 12-11. John HCIJX has 45 States to his credit!

"If 6 metre stations are scarce in Europe because of lack of propagation, and in South America because of the direction of the winds, e.g. between 2310Z on 2-11 and 0102Z on 3-11 N6CT worked 83 JAs plus H8LTG! At the same time, at least one U.S. station has worked more than 700 JAs and going for the WAJC Projection Award. Reports of working 40 to 60 JAs are common. S-11 and 6-11 provided a great opening to Alaska and many stations got their 50th State. The opening was so wide spread that WL7ACY contacted 270 stations in 45 States! The following day propagation opened to

KHS from as far away as VE1. KH6AA notes working over 100 stations, some using his IC502 and whip antenna! KX6AQ was worked from the Washington area to provide a new country. KG6DX at Guam also worked.

"The conditions were so good during mid-November that stations like WA2EAH worked several west coast stations with his IC502 and whip, while W3IP worked a WB with 20 milliwatts and a dipole, and WA1UOC made a mobile crossband contact with G3FXBI. In summary, it's been wild and continues to be, and will possibly surpass even 1958. We're having fun."

It certainly reads like it. Our only hope is that something akin to these conditions will come to the Southern Hemisphere during March and April, if it doesn't we'll set another poser in the history of propagation as to the differences between the two hemispheres. Our misfortune is that we have no land areas akin to that of Japan to U.S.A. paths with large masses of interested six metre operators. We have Africa to the west with limited six metre interest, and South America to the east further away and with interest unknown, particularly to the west coast. Most interest from that continent seems to be the north-south path to the U.S.A. and that from the eastern area of the continent. But let us not give up hope yet!

SIX MONTHS ON SIX

John VK5ZBU has done some research and provides the following to sum up the six metre activity during the last six months of 1979.

"June and July provided a few weak signals, the 'drought' broke briefly on 13-8 when VK3MUD, VK3VD and VK3ZTK were worked, between 0300 and 0350Z. August and September were not very productive, only brief and weak openings to VK4.

"Things improved a little in October, Roger VK5ZRT in Alice Springs was 5 x 9 at 1240Z on 26-10, also Graham VK2ZVV earlier 5 x 9. Considerable solar activity was noted between 1-11 and 13-11 with lack of signals, JA2ODM and VK4ZAA in Brisbane being only brief contacts until 15-11, when a good opening to VK7 occurred, 5 x 9 contacts taking place with VK7MC, VK7ZIG, VK7ZYT, VK7TW, VK7AE, VK7BC, VK7LZ and others from 0800Z.

"The following day 15-11 VK4ZAY and VK4ZNG announced their presence from Townsville at 0300Z, then followed VK2ZAY, VK4UX, VK2VC, plus another group of VK7s, plus ZL2CD and ZLBZFC. Conditions mainly unstable with considerable QSB. Quiet until 25-11 when Neville VK2QF at Mudjree was worked 5 x 9 at 0424Z, then Claude VK4UX. On 27-11 Townsville stations again 5 x 9 into Adelaide, VK4ZAY, VK4ZNG and VK4XZ around 0700Z, later VK4ABP (ex. VK4ZBB) at Longreach was 5 x 8 at 0728Z, then at 0730Z band opened again to Townsville. Barry VK4ZBJ reports an increase in 6 metre activity in Townsville, with about 12 stations able to work on the band, at least 7 of whom have already been worked. Strangely this year, the usual 'pipeline' to Rockhampton has not been in good shape during the openings to the more northerly areas, perhaps it is undergoing repairs or cleaning?

"Seemingly improved conditions due to less solar activity produce some good signals on 26-11 — opening at 0302Z and continuing until 0802Z available were the following: Gary HL9TG, Noel P29GA, Bill ZL2CD, Brian ZLBZFC, JA7MEV, Barry VK4ZBJ, Joe VK4JZ, Ian VK2ZIO, Adrian VK2YHU, Phil VK2ZZY. Also on this day Col VK3RSO let his hair down and worked 52 Japanese stations! YJ8PD was reported as hearing VK5ZJG and VK5ZBU though YJ8 was not worked in Adelaine.

"Following two quiet days, on 3-12 good signals from VK7 and VK2 preceded an interesting opening on 4-12 starting at 0700Z with VK2BHO, and VK1RK, plus many other very strong VKAs. At the same time extremely strong signals received from Gippsland VK3 stations into Adelaide, VK3CCM and VK3YKA. During this opening Andy VK6OX could be heard on backscatter from Carnarvon working into Sydney and areas east of VK5, finally at 1002Z he worked into VK5.

"On 5-12 VK2ZZV, VK2KXT and VK2ZIE were worked, then VK4ACE, Denis, a new station at Mt. Isa called in around 0800Z. At 1250Z it opened

to the regulars in VK7. On 6-12 and 7-12 only opened to VK4ACE and the Townsville gang, and on 8-12 to VK7 again, plus VK3CCM. On 10-12 very quiet during day but open to the VK7's again at 1230Z, with just enough time to say "Good evening" before the band shut for the night! With few exceptions conditions were such that signals would reach 5 x 9 then disappear quickly. The Japanese stations have been weaker, though fairly consistent at times.

"On 11-12 daylight hours very quiet, one pleasant contact was with Lance VK5ZBC, the first in many years, the OSO jointly with VK5RO was on 'Adult Modulation' with excellent signals all round!

12-12 0510Z VK4ACE followed by VK4JH, plus others, band starting open until 0742Z to VK4. At 0850Z Graham VK9GB heard in QSO with VK4 and weak in Adelaide, VK4 working VK3, and VK4RD's RTTY good copy on 32.065. 0815Z VK5ZDR worked VK7ZLB, at 0940Z Ray ZL2KWT worked several VKs x 5 x 6/9. At 1030Z VK4 to VK7.

"13-12 10 Townsville beacon 0500Z, followed by Hal VK4DO chasing Ross Hall numbers, at 0636Z to VK2ZFX, .0736Z VK7ZTF then Bill VK4ZWH and John VK4AJT, VK4ALM and VK4ZAA. At 0942Z Geoff VK9GF heard calling L, then he was worked in Adelaide 5 x 9 0948Z, and attempts made to hear Geoff's two metre signal. Considerable activity between eastern States and ZL.

"14-12: Nothing until 0900Z, then VK5AMK worked Tony VK5BY at Northam, then band opened to VK4ZBC at Mt Isa, then back to VK6WD, VK6OX, VK6CM, VK6ZED, VK5KZ and others. Beacons from VK4, 2 and 6 during opening".

Thanks for the fill-in up to this date John, which now allows me to continue with some information to conclude the chapter from my own log.

18-12: VK4ZBW at 0443Z and VK4ZBJ at 1129Z, nothing else. 19-12: 2305Z VK4ACE 5 x 9. Continued to fiddle the fingers until 23-12 when VK4ZLB came in really early at 2337Z, followed by a string of other VK4s and VK2s, but the VKs mainly confined to the far north areas. At 0102Z VK8OF 40 dB over 9, so strong in fact we just had to try 2 metres with him, but the absence of any short skip stations indicated the MUF was not high enough. At 0512Z JT1ERG heralded the first opening to JA for some time, this time assisted by Es. JA8s were mainly 5 x 9 and covered JA1, 2, 7, 8, 8 areas.

Of particular note on 22-12 were very strong (well over 59) signals from Japanese stations on 50 MHz but not reaching 52 MHz. The JAs were working themselves via a strong Es opening in their own country — it was interesting to hear them calling their own call areas. Hal, VK4DO reported working 1857 JAs from February to November 1979! Incidentally, the JAs on 23-12 worked in VK1, 2, 3, 4, 5, 6, 7 and 8 as far as we know, with signals into VK6 being the strongest. Not many call areas left for that day!

24-12: JA1 to 9 areas, VK4ZAZ, and VK8OF, plus VK2BXT. Advising he will be shifting to Sydney from Moruya in 1980. Speaking to Graham VK9GB & 28885 liaison frequency, he advised Brian VK9RVF lost his four 2 metre beams in a recent storm, and that Brian would be going to P29 (Reabull) for a period of 3 years during 1980. Graham advised ZL1, 2, 3 and 4 had been worked from Darwin this year, plus P29 twice. He was hoping to work the Ball DX-pedition during the next few days up to 5-1-80. The VK8VF beacon is at present running low power since the storm.

25-12: Started off a bit slow, probably everyone eating Christmas meals! At 0732Z opened to VK4, then VK5ATN backscatter at 0805Z. At 0847Z VK4ZGI, 0858Z VK6KZ, 0904Z VKPAZS plus others, 1104Z VK5ATN again on backscatter, also VK5BHS, then just to complete the day Aub VK5XY in Albany worked on 144.090. Also noted that H4PT worked VK4JB at 1645Z for first H4 to VK4 contact I am told.

26-12: Early start at 0135Z to VK4DO, still chasing numbers gave me 566741. At 0142Z VK8OF so strong again in 2 metres had to be tried 0204Z VK4ZBL and VK4A stations interspersed throughout the day until 1031Z. Report received that Les VK3ZBJ had heard a VK4 (SGFT) in Melbourne on 2 metres. 27/12 Open to VK4ZNG at 2332Z 5 x 9. We then had a spell until 29-12 when Joe VK4JH

came through 5 x 9 at 0025Z, then VK4ZBJ, the remainder of the day was a rest period from Es!

30-12 opened early with VK4ZLS at 0047Z, then an interesting set of conditions produced very strong signals from VK3 northern areas from 0050Z, with VK3ANP, VK3YNN, VK3OT and VK3SATN predominating. Later Ken VK5AKK was heard at 0139Z at 5 x 4. These short skip conditions caused the VK5 stations to scurry on to 2 metres because Es were bringing in strong signals from VK4 at the same time, but no success. Ted VK2ARA was grabbed at 0145Z 5 x 9. Open to VK4 for most of the day, at 0942Z VK8GF 5 x 9 again, followed by 5 x 9 signals from VK6ZKO, VK6ZED, VK6BV, VK5RO, VK5EZ and others. At 0930Z observed VK4ZJB working VK6WD and others, 5 x 9 reports. Tony VK6BV advises he could be on 432 MHz soon.

2-1-80: Probably the last of any worthwhile Es for this period, opening at 2316Z to VK2AS, VK2ZRU and VK2BHO. John VK2BHO almost always alerts us the band is open because his strong CW signals herald the opening! At 1149Z VK7ZIF and VK7ZTA, and the same two stations again at 1223Z just long enough to say "Goodnight". Lance VK4ZAJ worked VK2BXT, and reports came through during the opening that WSKJ had worked ZL on 31-12. Also a report from Gerry VK5ZZZ that the DX-pedition to Ball, YB9X/Y had worked 160 JAs on 6 metres up to 2-1 but no VKs — that's not surprising considering the lack of Es from the Darwin plus area this year.

SIX METRES FROM BUNBURY

A newcomer to six metres, Graham VK6ZGS, has been thrilled with his workings to date, and I can understand why. On 10-10 he obtained an IC502, and the following day had his first contact to JA from his car, using the IC502 barefoot to a whip antenna! When I think of the years to take to work my first JA . . . SLP. At home Graham runs the 502 into a 25 watt linear and a bow-line antenna with 6 dB gain. On 24-11 mobile between 0640 and 0643Z worked VK5YA, VK5ZDR, VK5RO and VK5ZPE the latter up to 5 x 8 on the handheld! From the home shack on 3-12 worked a string of VK2s plus heard VK5OT and others. 4-12 VK4 barefoot. And so it goes on.

Good luck Graham, hope you passed the CW in November, and also hope this won't mean you will forsake the VHF band!

A LOOK ON TWO METRES

One might be forgiven for thinking there is no more room available with so much happening on six metres, but this is not the case. Locking around the country, I now confirm via the VKS VHF Group Bulletin that a new two metre internal record has been established there between Andy VK5DX in Carnarvon and Aub VK5XY in Albany, on 144.100, during October on CW, and later to be repeated on SSB on 21-11-79, Distance 1195 km. Perth stations are reporting reception of the Carnarvon beacon VK5RTT on 144.600 MHz.

VKSCH STIRS THE VKS

From his hilltop location near Piccadilly in the Mt. Lofty Ranges, Dave VK5CK working a pair of stacked 13 element beams (a SLP) and about 50 watts, has certainly been stirring up the VK3s in all directions. The following details are given in the hope that VK3 won't despair that their efforts go un-noticed, but do remember there are other VK5s available too, but not from such a super location, therefore, they will probably be weaker!

18-11 starts off this saga, most contacts unless otherwise noted have been on 144.1 or thereabouts, and signal reports mostly the same both ways. So far I have heard: Ray VK3AXV hits the receiver at 5 x 9+4+, and the same again on 19-11, 21-11: VK3VII 5 x 5, VK3ZH2P 5 x 2, 25-11: VK3ZHP 5 x 2, and heard a VK7 working a VK3. 27-11: VK3AXV 5 x 9, same again 29-11, 1-12: VK5XY 5 x 9, VK3TN, VK3AXV both 5 x, VK6ED 5 x 1, VK6NL 5 x 1, heard VK3ARW, 6-12: VK3VII 5 x 9, 15-12: VK3AXV 5 x 9, 21-12: VK3AKP 5 x 7, 22-12: VK3SQ 5 x 5, VK3BFY 5 x 4, VK3ZH2P 5 x 1, VK3VII 5 x 1, VK3AXV 5 x 5, VK3YR 5 x 1, VK3VLY 5 x 7, VK3AXV 5 x 9, plus a brief CW contact with K3AUW 5 x 1.

25-12: VK3ATN 5 x 5, VK6WG 5 x 5, VK6BE 5 x 5, VK3AXV 5 x 9, VK3ATN 5 x 7, VK5DK 5 x 5, 26-12: VK3YRQ 5 x 1, VK3AXV 5 x 9, VK3VII 5 x 2,

VK3ZBJ 5 x 8, VK3ZE 5 x 7, VK3BFY 5 x 5, VK3ATN 5 x 5, VK3YLY 5 x 6, 29-12: VK3ATN 5 x 3, same on 30-12. And that sort of thing is still continuing!

It is interesting to note that daily contacts both early morning at 2100Z and at night 1100Z have been made between a number of VK5 stations and VK5ATN on 144.100. Signals for some reason or other have not been very strong, but they are always there. Those participating have been VK5CK, VK5RO, VK5ZDR and VK5LP, occasionally others. Most reports have been from 4 x 1 to 5 x 3, with somewhat stronger signals at SCK. 432 MHz signals have been heard from time to time between VK5ATN and VK5LP, but only weak, on CW.

OTHER TWO METRE NEWS

Perth beacon VK6RTW copied in Adelaide 1000Z on 18-12 at 51, New Albany stations on 2 metres are VK6EO, VK6KZJ and from Denmark further west VK5KSL. . . . On 14-12 Wayne P292ZW worked into the 2 metre repeater at Townsville, later made contacts via Ch. 50 and on SSB . . . 25-12 VK6MZ heard VK5VF beacon on 144.800 on 0630Z, so it looks as though the path on 2 metres to Perth could be just around the corner once more . . . 29-12 VK5ATN worked four VK3s on 432, and also VK5ACH on 1295 MHz, CW both ways. This latter contact a bit difficult as VK5ACH was keying his FM carrier! . . . 1-2-80: VK5ATN worked VK2DGW in Griffith who had an IC202 to 5 element beam at 15 feet! . . . Roy VK3AXV runs 80 watts on 2 metres, very fine signal at VK5PL QTH. . . . Continuing to find the pair of 13 element beams here at 5LP do very well on 2 metre working backed up with the masthead pre-amplifier I can work anything or anyone I can hear!

TROUBLE DOGS REPEATER

From the "Propagator" comes this months bad luck story: "The Wollongong repeater is on Ch. 5. First a savage storm caused damage to the receiver, transmitter exciter, and the control unit. Five transistors had to be replaced; amazing damage had not been worse considering some grass in the vicinity of the transmitter cubicle had been burnt by lightning. A large tree nearby had been burnt on one side."

"Two weeks later, another storm took its toll of transistors, this time in the control unit.

"Last week's hailstorm which hit Sidney had its epicentre in Robertson. The force of the hail tore holes in the top of the transmitter cubicle, allowing water to penetrate. The water got into the decoder for the auxiliary receiver used for the relay of the Sunday broadcast. A special ground stake has been installed in an effort to reduce currents in the lightning due to surge currents from the lightning".

Apart from a gale smashing the whole assembly there doesn't seem much more could wrong with the installation. Let's hope your troubles are now behind you, boys.

SECOND ARRL EME COMPETITION

Gerry VK5ZBB sends me a copy of the rules of the above competition, conducted on 144, 432 and 1295 MHz, with world-wide participating stations. It was won by K1WHS who scored 70,200 points, heard 47 EME stations and contacted 39 of them, on 144 MHz only and using a 160 element collinear, 103 stations from everywhere participated, the average QSO for single operator stations was 13.1. The set-up at the winning station consists of the 160 element collinear fed with 7/8" heliax, a 3N21 MOSFET preamp mounted at the antenna with a 1.4 dB noise figure, homebrew converter and 5TAs. 13.5 dBm transmitter used 6306-4CX350A-8877 running 1000 watts. Next year they plan a bigger and better antenna!

Number two position went to WBSU/LA, one of the few with 144 and 432 capabilities. His preamps both use DXL 3501A GaAs FETs with 0.5 dB noise figure. The top 432 MHz honour went to FBFT who used sixteen 21 element yagis, an HP HFET1101 GaAs FET pre-amp with 0.3 dB noise figure, and a pair of 4CX250Rs.

Pleased to see Chris VK5MHC was able to participate, using his 6.6 metre dish to run up 3600 points with 6 stations heard and worked.

Some stations are very well set-up when one peruses the list, I note ZE5JJ has the 10 metre dish working, whilst JA6DR has a 12 metre dish.

OPPORTUNITY to obtain back copies of AR

To make space in the new executive office it is proposed to deliver for paper recycling all EXCESS COPIES of AMATEUR RADIO accumulated from MARCH 1972 to DECEMBER 1977 inclusive.

Anybody interested in specific issues should apply at once to

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Regrettably some issues of these ARs will not be available, being out of print. Orders will be processed as time permits so some delay in despatch must be accepted.

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no justification for ANY station to have a prolonged contact with a rare station — do the right thing and share him with the multitudes!

So feel if you bear all of the above in mind there could be many stations sharing some good contacts, particularly if PTT sees fit to join with other administrations and recognise the need for Australian amateurs to be able to share in some way the 50 MHz area at least by 1st March 1980:

Closing with the thought of the month: "In the game of life, as in other sports, you can pick out the winners — they're the ones who aren't complaining about the officiating".

73, The Voice in the Hills.

QSP

AMATEUR LICENCES

As at 30th June, 1979, there were 12,062 licensed VK amateur stations of which 2,974 were Novice, 3,108 Limited and 5,956 Full Calls. For States, NSW led with 4,633 and Victoria 3,425. NT showed 65 per cent Full Calls, ACT 10 per cent and the national total 49 per cent — the lowest being Queensland with 44 per cent of the national total. Novices were 26 per cent with the highest percentage of 29 per cent in Queensland and the lowest in the NT of 8 per cent. Limited calls showed up as 26 per cent of the national total, ranging from 31 per cent of the Victorian total down to 16 per cent of the ACT total. At the same date licensed CB stations on HF totalled 173,507.

TF LAND

In a letter to AMSAT (September 1979) Kristian TF3SKK briefly outlined the level of activity in Iceland. There are approximately 100 members in the national society, of which 20 to 30 are active on HF, VHF or in special fields of amateur radio such as RTTY, etc. It may pay to also keep a listening watch on OSCAR satellite frequencies from time to time, as Kristian and fellow amateurs are becoming active using OSCAR.

One wonders at the mechanical problems that must confront stations like YU2RCC who uses sixteen 23 element yagis on 432 MHz — and the complexity of feeding the monster. Even K2QRH heard one station on his single 15 element yagi on 2 metres! And what about W4WD who ran up 12000 points using sixteen 45 element J meams!

ROSS HULL CONTEST

A few stations around with some very high scores, but the facility of being able to commence at any number up to 1000 makes some of the early high numbers rather suspect. I note VK3ATN has been making a good effort to gather numbers and using several bands to do it. He has managed to stir up some interest in VK5 to get some stations on night and morning at least on 52 and 144 to exchange numbers, but the conditions have been fairly poor so it has been a struggle at times.

In an effort to ensure the Contest continues I hope those operators with lower scores will send in a log particularly as the Contest Manager has suggested a photocopy of your log will be acceptable — this to me is a very sensible departure from previous requirements.

THE EQUINOX

Those keenly interested in six metres will be looking forward to the March/April period in particular in the hope we may have a chance to share in some of the outstanding conditions already enjoyed by stations in the Northern Hemisphere. It is clear that March/April last year was better than September/October last year, and in the Northern Hemisphere it is the other way round, September/October seems to have been superior to the earlier equinox. This seems to suggest conditions are more favourable during the autumn than the spring, but only time will tell.

Just a few suggestions which might help to pave the way for an increase in exotic contacts:

(1) If you can monitor between 30 and 50 MHz watch for a rising MUF which will be shown by overseas commercials becoming apparent in that

area. Even two-way radio stations are audible from U.S.A. and elsewhere, and are a good guide to possible contacts. These will mostly be heard during our mornings, say from 2300Z through to perhaps 0200Z or even later.

(2) If the 40 MHz+ area is active, keep a close watch on 50 MHz with the beam to the north east; in this position you will also hear the JAs if they are strong enough to work. But hearing signals on 50 MHz doesn't always mean they will be on 52 MHz, the MUFS sometimes does not rise that high! And don't cheat, wait and work stations on 52 MHz, not 50 MHz. Remember, most overseas areas are dead set against out of band contacts and wide publicity about the VK position has been given in overseas publications — you may not care to have your name on the ARRL and SMIRK black-list!

(3) When the band is quiet operate on 52,050 by all means — that was the purpose of originally deciding on this as a standard frequency and it is known overseas. BUT, please do leave a few seconds break between overs to allow another station, perhaps from an exotic area, to call in. If the band is in good shape, then after establishing contact on 52,053, move away to allow others to monitor the frequency. The worst thing you can do is to use 52,050 for a crossband contact and so block the frequency for lengthy periods, the only exception might be if you are using VOX so there will be periods when you and your listening station will have a chance to hear another station.

(4) Perhaps most importantly, if you are lucky enough to get a contact with a rare station, keep the contact SHORT, remember there will be many other stations wanting to work him, and the conditions may only remain for a few minutes. All you need for a contact is to exchange signal reports, plus names, a request for a QSL, then sign off, the whole exchange need only take 1 to 2 minutes. This way you won't have other stations breaking in and generally frustrating others and getting a bad name on the band. There is absolutely

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

Lot 92, Russell Ave., Woodend 3442
9th January, 1980

The Editor,
Dear Sir,

I am writing to you with an appeal. The appeal is to ask if there is any radio amateur reading this who might be able to help me in learning about RTTY. Just recently I obtained a Model 15 teleprinter and I set it up to the point where I can copy reasonably well. However I do need some more help in getting it all to work very well. I am at a disadvantage in that I live in a remote location and have no effective means of contacting anyone else except by letter. There are no repeaters. Club members can see other amateurs and learn from them. This is also one of the reasons that I have lacked the confidence and the knowledge to go for my ticket.

Whilst I have visited the "shacks" of some amateurs I have had virtually no contact with any amateurs for some time now and I have never had an amateur come here and visit me.

Terry Robinson L31105

5 Lytle Ave., Lindfield, N.S.W. 2070
26th November, 1979

The Editor,
Dear Sir,

Would you kindly publish in our magazine this note of appreciation.

I have just returned from a yachting trip in which I was navigator/radio operator. Just before typhoon Tip commenced to build up we lost our engine due to mechanical failure and when the storm started we ripped our mainsail and later our backstay bracket failed so we were without propulsion.

I would like to thank all those hams who assisted by passing messages to the captain's XYL to obtain replacement parts for the engine and to my XYL to advise her of the details of our rescue by the United States Navy and Coastguard. I am especially grateful to the operator who rang the Marine Operations Centre in Canberra to advise them of our "Mayday" calls and who also rang a well known amateur friend of mine in Sydney.

My only disappointment was to find that an amateur I "knew" from previous contact did not know how to react to a mayday call but casually remarked to the station he was working that he had heard a "mayday" which appeared to be coming from New Zealand and then went on rag chewing.

This contrasted to the American hams who kept watch on my frequency and chased off anyone who started transmitting within 5 kHz of me. (Oh to have ten kilohertz all to myself now that I am home!) The principal amateur in our rescue was KG6JWX who remained on watch for 48 hours except for the period from 0200 to 0900 LMT on our first night.

Thank God for the radio amateurs.

Yours faithfully,

Gordon H. Sanders VK2DGS

"Bonnie Braes", Wattamondra, N.S.W. 2741
21st December, 1979

The Editor,

I am writing in support of Mr. R. J. Somerville's letter in December AR suggesting that past articles of an instructional nature should be made available in book form.

Having recently gained the AOCOP after studying on and off for some years via the WIA course, which was until recently about the only guide as to the scope of knowledge required, I find that there seems to be a great lack of really comprehensive basic training material. To some this may seem strange since there are many books of basic this and elementary that, but unfortunately most are trying to cover a complete radio course

in a couple of hundred pages or less — an impossible task.

Many may argue that it's all in the RSGB or ARRL Handbooks but to me they leave far too much reading between the line to be classed as satisfactory training texts. I would have hoped that the continual issue of new editions would have done much to remove those vague old explanations that have been rehashed for many years.

The ARRL is however to be commended for many of its other publications, an outstanding one of which is "Understanding Amateur Radio". This practical little book is a taste of what the Handbook should be and is an invaluable aid for AOCOP candidates. Another fine book with a much fuller treatment of electronics but not radio is "Basic Electronics" by Grob.

Undoubtedly the best general text I have seen is "Electronic Communication" by Shadur. I thoroughly recommend this book to all such as myself who have not had the good fortune to be able to collaborate with someone trained in communications radio and have had to learn it all from books.

Judging from the number of novice calls filling up the callbook, there should be plenty of incentive for those better informed WIA members to get together and do something about this situation. I can think of no better way to justify those membership fees and enhance the reputation of the WIA at home and abroad than to put out a really worthwhile training textbook. Why leave it to the Yanks, they may have thirty times the numbers but are they thirty times as smart? Why not simply ask or offer a small incentive to members for submissions of suitable material — the results may be surprising. Remember, all those call signs have had to pass an exam.

Perhaps a good starting point for those contemplating doing something would be to give some credit to men like Galvani, Ampere, Faraday and Hertz. Their discoveries have laid the foundations for a massive part of the technology that has made our age unique.

I would also like to take this opportunity to thank those unsung heroes that have devoted their time and talents to produce the slow wave practice session. Without their help my AOCOP would have been extremely hard to get. In terms of simplicity of equipment, width of spectrum and communications effectiveness, CW still seems unchallenged. With this excellent service provided each night I wonder at that long list of limited calls. Is the modern amateur to be merely an extravagant Cber or someone with some knowledge and understanding of the privileges he enjoys.

The RF spectrum is a natural resource and with a sound standard of knowledge to indicate a genuine interest in radio. I see no reason to provide further evidence to justify our occupation of the amateur bands, especially since forward looking Governments should be looking at satellites and that massive undeveloped microwave segment for domestic and international communications.

Yours faithfully,

Graham L. Dun

5th December, 1979

The Editor,

Dear Sir,

I would like to strongly support the sentiments expressed by VK6ED in his letter in November AR.

Like VK6ED I am not interested in entering EITHER Phone OR CW, I wish to enter both and meet as many of my old friends as possible, a number of whom served with me during 1938-45. The abolishing of an Open section does appear to be influenced by the "Down with CW" group, but I can well remember contacting many of those amateurs, who later paid the supreme sacrifice, on CW during 1938-39 era, probably because I could not afford to go on phone anyway.

Other factors annoyed me regarding this year's contest. If one relied on AR for rules concerning the RD contest, it would have been difficult as my July copy of AR arrived on August 21st and having arrived back from overseas on August 6th I had no idea when the contest was to be held; I listened to the pre-contest broadcast from

VK2AWI and little significance was attached to the true meaning of the contest; the role of honour in whose memory the contest is conducted, was not even read out; in fact, from what I heard, let us change the name of the Contest — say, "The Friendship Contests".

Might I suggest that in future years details are not left to the last minute — we could well have some strike to blame again for late advice of details. An outline be given of what the RD contest is all about, that Novices be encouraged to enter the open section, even a low power section be encouraged.

We owe a lot to those amateurs — and many others — who died during the 39-45 conflict, let us remember them on this occasion each year and give those members who participate the opportunity to enter those sections and modes that give them most enjoyment. If they choose to have the minimum permissible contacts and put in a log (as I did this year) — good thing — if they want to go flat out for 24 hours for a large score (as I have done in the past) — all the better. But let us encourage and advertise the RD Contests.

Yours sincerely,

Jim Andrews VK2BO

8th December, 1979

The Editor,
Dear Sir,

ENDEAVOUR AWARD — ROYAL NAVAL
AMATEUR RADIO SOCIETY

Our award, the "Endeavour Award" has also been going nicely, thanks to AR, and I have been advised we have issued 52 awards since Easter. There have been a couple of minor changes to the rules of the award to permit QSOs on VHF and to award double points for VK2BNR, NSW NIRIMBA. Also VK2BNR counts double points for the "Mercury Award" as do the two other stations operating from Naval establishments — GB2RN/G4HMS — HMS BELFAST and GB3RN/G3BZU — HMS MERCURY.

To gain an idea of the size of RNARS we are currently allocating numbers in the 1420 series.

We hope to gain a few more members and also interest a few YLs, especially those who were in the WRANS.

If anyone has a Creed transmitter for sale we would be grateful if you could let us know.

Terry R. Clark, VK2ALG, RNAS 1196,
Australian Branch Manager — RNARS
P.O. Box 537, Albury, N.S.W. 2640.

EDITOR'S NOTE: Please see "Awards Column" for the updated rules.

CONTESTS

Wally Watkins VK2DEW
Box 1065, Orange 2800

February:

- 9-10 John Moyle Field Day
- 16-17 ARRL DX CW Contest
- 23-24 French Phone Contest
- 23-24 RSGR 7 MHz CW Contest

March:

- 1-2 ARRL DX Phone Contest
- 9-10 Europe and Arctic RTTY
- 22-23 BARTG RTTY Contest
- 29-30 CQ WW WPX SSB Contest

April:

- 26-27 Helvetia Contest

May:

- 24-25 CQ WW WPX CW Contest

ARRL DX Contests, full rules and specimen front sheet and log sheet available from FCOM for \$5.00.

Watch for 2WBK/PJT, CW and SSB on 10, 15 and 20 during March 10-24, 1980.

COMMONWEALTH CONTEST 1980 — "BERU" — RULES

TIME 1200 GMT Saturday, 8th March to 1200 GMT Sunday, 9th March.

MODE

CW only, 3.5 to 28 MHz. Call is CQ BERU.

Eligible entrants are radio amateurs licensed to operate in British Commonwealth call areas as listed below.

SCORING

5 points per contact exchange (RST 001 etc.), 20 points for 1st, 2nd and 3rd contact with each call area other than one's own, on each band.

G, GW, GD etc. are counted as one area. Contacts with one's own area do not count at all. Penalties are imposed for unmarked duplicate contacts, incorrect calls and reports.

LOGS

Separate logs are required for each band showing columns:—

1. Date and time GMT.
2. Station worked.
3. NR sent.
4. NR received.
5. Band.
6. Leave blank (for checking).
7. Contact points claimed.
8. Bonus points claimed.

Each band log should be separately totalled and should include at the end a check list showing areas worked and number of contacts per area. Separate band totals should be added together and the total claimed score entered on a cover sheet giving particulars of station, QTH, equipment, power, antenna, and a declaration that the rules and spirit of the contest have been observed.

Entries may be single or multiple band. Single band entries should claim contacts on one band only, but submit details of contacts on other bands for checking only.

Entries should be addressed by AIR MAIL to D. J. Andrews G3MMJ,
18 Downview Crescent, Uckfield,
East Sussex, England, TN221UB.
Closing date: 12th May, 1980.

COMMONWEALTH CALL AREAS

The following call areas are recognised for the purposes of scoring in the 1980 Commonwealth Contest:

A2 Botswana, A3 Tonga Is., A5 Bhutan.

C2 Nauru, C5 Gambia, C6 Bahamas.

G/GB/GD/G1/GJ/GM/GU/GW.

H4 Solomon Is.

J3 Grenada, J5 St. Lucia, J7 Dominica.

P2 Papua New Guinea.

S2 Bangladesh, S7 Seychelles.

T2 Tuvalu, T3 Kiribati.

VE1, VE2, VE3, VE4, VE5, VE6, VE7, VE8,
VK1, VK2, VK3 Lord Howe Is., VK3, VK4, VK4
Willis Is., VK5, VK6, VK7, VK8, VK9 Christmas Is.,
VK9 Cocos Is., VK9 Norfolk Is., VK9 Heard Is.,
VK0 Macquarie Is., *VKD/VPA Antarctic, V0, VP1,
VP2A, Antigua, Barbuda, VP2E Anguilla, VP2K St.
Kitts Nevis, VP2M Monserrat, VP2S St. Vincent,
VP2V British Virgin Is., VP5 Turks & Caicos, VP8
Falkland Is., VP8 S. Georgia, VP8 S. Orkney Is.,
VP8 S. Sandwich Is., VP8 S. Shetland Is., VP9,
VQ9 Chagos, VR1 British Phoenix Is., VR6, VS5,
VS6, VX9 Sable Is., VY1 Yukon, VYO St. Paul Is.,
VU India, VU Laccadive Is., VU Andaman & Nicobar
Is., YJ.

ZB2, ZC4/SB4, ZD7, ZD8, ZD9, ZE, ZF, ZK1
Cook Is., ZK1 Manihiki, ZK2 Niue, ZL1, ZL2, ZL3,
ZL4, ZL Auckland and Campbell Is., ZL Chatham
Is., ZL Kermadec Is., ZMT.

SB6/SB7 Agalega and St. Brandon, SB8 Mauritius,
SB9 Rodriguez Is., 3D2 Fiji, 3D6 Swaziland.

45T.

SH3, SN2, SW Samoa, 5X5, 5Z4.

EY5.

TP8, 7Q7.

EP, GR.

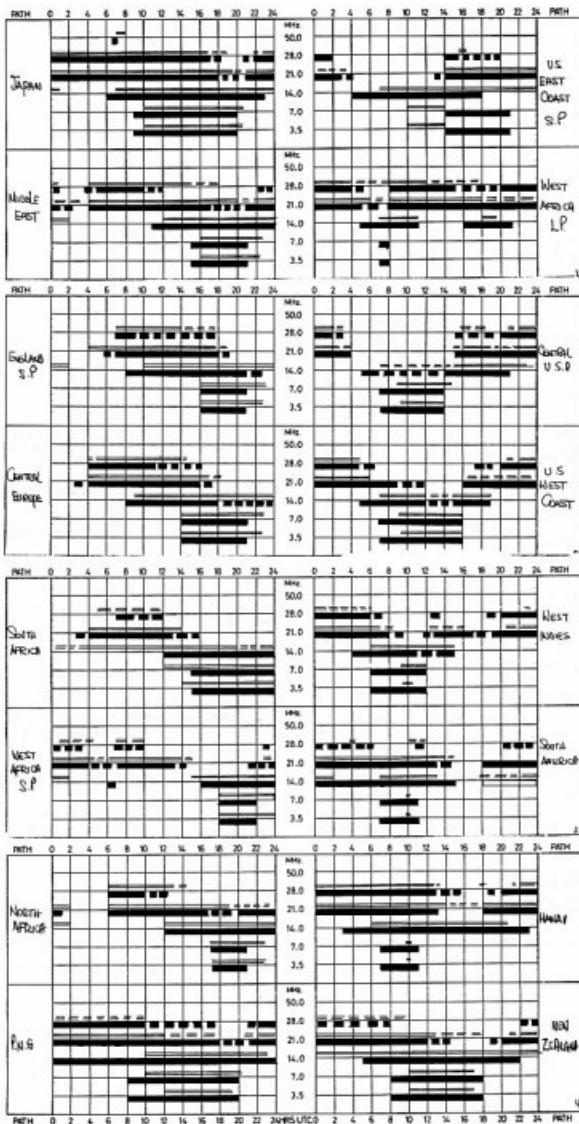
9G1, 9H1 Maltese Is., 9J2, 9L1, 9M2 W. Malaysia,
9M6/9MB E. Malaysia, 9V1, 9Y4.

*All calls operated from Commonwealth controlled areas of the Antarctic (VK0, VP8, ZL5 etc.) count as one call area.

Results of the 1979 Contest in which 41 VPKs submitted logs appeared in December 1979 Amateur Radio.

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC

**LEGEND**

- FROM WESTERN AUSTRALIA.
- FROM EASTERN AUSTRALIA.

- BETTER THAN 50% OF THE MONTH, BUT NOT EVERYDAY.
- LESS THAN 50% OF THE MONTH.

PREDICTIONS COURTESY IPI'S, SYDNEY.

ALL TIMES UNIVERSAL UTC (GMT).

**IF
YOU'RE
NOT
BUYING
AMATEUR
RADIO
ACTION**



(IT'S AUSTRALIA'S BEST
SELLING AMATEUR MAGAZINE)

**THEN
YOU'RE NOT
KEEPING
UP WITH
THE LATEST
NEWS, VIEWS
AND REVIEWS**

Please put me down for 12 editions of Amateur Radio Action, starting NOW!

Rates in Australia - \$14.40 Surface mail overseas - \$18.40 Air mail: To New Zealand - \$A28.70; Malaysia - \$A32.60; Japan - \$A38.45; USA - \$A42.35; UK - \$A46.25

Herewith enclosed cheque/postal note/money order to the value of:

\$.....

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Address.....

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Postcode.....

Post to: Amateur Radio Action Subscriptions, Box 628E, Melbourne 3001.

WICEN

Ron Henderson VK1RH
Federal WICEN Co-ordinator,
53 Hannaford St., Page ACT 2614
Ph. (062) 54 2059, A.H.

EMERGENCY SERVICES COMMUNICATIONS PROCEDURE

This issue we continue with the third part of the Emergency Services Communications Procedure Paper.

20. SIGNAL STRENGTH AND READABILITY

A station that wishes to inform another of its signal strength and readability will do so by means of a short and concise report of actual reception such as "Weak, but readable", "Strong, but distorted", "Loud and clear", etc. A station desiring to know how its transmission is being received will transmit "How do you hear me?"

21. SYNCHRONISING TIME

- (a) When a net has been established, Control should announce the time so all operators can synchronise their watches. To do this Control will say, for example:
"All stations THIS IS (Call Sign). When I say time it will be exactly 1500 hours. 15 seconds — 10 seconds — 5-4-3-2-1 — Time 1500. OVER!"
- (b) Control will use the same procedure if a request for the time is received from a substation.

22. OFFERING MESSAGES

- (a) An offer is a short transmission made to warn the receiving station concerned that a message follows. All messages will be offered. The pwordos used in the exchange of calls in the offer of a message are "MESSAGE" or "LONG MESSAGE" or "UR MESSAGE". "SEND"
- (b) When the sending operator has a long message he warns the receiving operator by offering the message as a "LONG MESSAGE".

23. RECEIPTS

The transmission of a message is not completed until the receiving station gives a receipt for it. This is done simply by using the pwordo "ROGER".

Example:
"VK1BAA THIS IS VK1BAC send vehicle for mail — OVER".
"VK1BAA — ROGER — OUT".

24. TYPES OF CALL

There are three types of call which can be used on a net. They are "Single, Multiple and All Stations".

- (a) Single Call: Used by Control to substation, substation to control or substation to substation.

Example: Control to VK1WI (VK1WI is control).

Control: "VK1BFA THIS IS VK1WI UR MESSAGE — OVER".
VK1BFA: "THIS IS VK1BFA — SEND — OVER".

Control: "THIS IS VK1WI — fresh batteries have arrived — OVER".
VK1BRA: "VK1BFA — ROGER — OUT".

Example: Substation to substation (Directed Net).

VK1BFA: "VK1WI — THIS IS VK1BFA — UR MESSAGE FOR VK1BFC — OVER".
Control: "THIS IS VK1WI — SEND — OUT".
VK1BFA: "VK1BFA THIS IS VK1BFC — SEND — OVER".

VK1BFA: "VK1BFA — request loan of a new battery — OVER".
VK1BFC: "VK1BFC — ROGER — OUT".

- (b) Multiple calls: Used by Control to two or more substations but not used when calling all substations.

Example: Control: "VK1BFA, VK1BFC THIS IS VK1WI — UR MESSAGE — OVER".
VK1BFA: "VK1BFA — SEND — OVER".
VK1BFC: "VK1BFC — SEND — OVER".

Control: "VK1WI — Collect fresh batteries from me — OVER".

VK1BFA: "VK1BFA — ROGER — OUT".
VK1BFC: "VK1BFC — ROGER — OUT".

- (c) All Stations Call: Used by Control to all substations on the net. (All Stations on the Net reply in alphabetical order.)

EXAMPLE:

Control: "ALL STATIONS — THIS IS VK1WI — UR MESSAGE — OVER".

VK1BFA: "VK1BFA — SEND — OVER".
VK1BFC: "VK1BFC — SEND — OVER".

VK1BFC: "VK1BFC — SEND — OVER".
Control: ALL STATIONS — THIS IS VK1WI — Have you received fresh batteries — OVER".

VK1BFA: "VK1BFA — YES — OUT".
VK1BFC: "VK1BFC — NO — OUT".

VK1BFC: "VK1BFC — YES — OUT".

25. SENDING A LONG MESSAGE

A long message is one of more than 30 words or text. The following procedure is then adopted:

- (a) The message will be offered, using the pwordo LONG MESSAGE.

(b) It will be sent in sections.

- (c) After about 15 groups, the sender confirms progress by saying "ROGER SO FAR — OVER".

- (d) Receiving stations answer "ROGER" in turn or, if necessary, ask for repetitions.

- (e) After obtaining acknowledgements from all receiving stations the sender pauses for five seconds. This is to allow any other station to transmit an urgent message.

- (f) If there is no interruption the next section of the message is transmitted.

This procedure is continued until the message is cleared.

EXAMPLE:

VK1BFC is sending a LONG MESSAGE to VK1BFX. He sends it in two sections.

VK1BFC: "VK1BFC — THIS IS VK1BFC — LONG MESSAGE — OVER".

VK1BFX: "THIS IS VK1BFX — SEND — OVER".

VK1BFC: After sending the heading of the message says:

"BREAK — following accommodation stores required by one six hundred hours today — stop — blankets figures five hundred — stretchers figures two five zero — ROGER SO FAR OVER".

VK1BFX: "VK1BFX — SAY AGAIN WORD AFTER ACCOMMODATION — OVER".

VK1BFC: "VK1BFC — I SAY AGAIN WORD AFTER Accommodation stores — I SPELL — Sierra Tango Oscar Romeo Echo Sierra — stores — OVER".

VK1BFX: "VK1BFX — ROGER — OVER".

VK1BFX pauses for 5 seconds to allow any station with urgent traffic to call in.

VK1BFC goes on sending the rest of the message:

"VK1BFX — THIS IS VK1BFC — pillows figures two five zero — cutlery sets figures two five zero — cooking sets type Delta figures two — MESS-SAGE ENDS — OVER".

VK1BFX: "VK1BFX — ROGER — OUT".

26. WORDS TWICE PROCEDURE

When communication is difficult, call signs, phrases, words or groups are transmitted twice and indicated by use of the pwordo "WORDS TWICE". Reception may be verified by use of the pwordo "READ BACK".

EXAMPLE A:

VK1BFX: "VK1BFC — VK1BFC THIS IS VK1BFX VK1BFX — UR MESSAGE — UR MESSAGE — OVER".

VK1BFC: "VK1BFX — VK1BFX — THIS IS VK1BFX — VK1BFX — SEND — SEND — OVER — OVER".

VK1BFX: "VK1BFC — VK1BFC — THIS IS VK1BFX — VK1BFX — WORDS TWICE — WORDS TWICE — PRIORITY — PRIORITY — TIME ONE TWO TWO ONE SIX THREE ZERO — TIME ONE TWO ONE SIX THREE ZERO — BREAK — BREAK — CONVOY has arrived — Convoy has arrived over — over".

SIDEBAND ELECTRONICS ENGINEERING

P.O. BOX 23, SPRINGWOOD, N.S.W. 2777
WAREHOUSE 213 HAWKESBURY RD, SPRINGWOOD
TELEPHONE (047) 54 1392

Overseas prices again show an upward trend. If you are in need of new equipment it makes sense to purchase now. Prices must increase once current stocks are sold. How about KENWOOD transceivers at the right price, or a YAESU FT-1012 fitted with fan at \$850 -, HENRY linears \$850 - and \$1050 -, TH6-DXX \$300 -, 18-AVT/WB \$110 -, Rotators, cables and Co-ax connectors all at the right price. Check and compare our prices with others before you buy!

HENRY RADIO — A Famous Brand —

NEW LINEAR AMPLIFIERS —

| | |
|--|--------|
| 2KD-5 — 2KW PEP, 80 - 10m SSB/CW/RTTY/AM | \$1050 |
| 1KD-5 — 1200W PEP, 80 - 10m SSB/CW/RTTY/AM | \$850 |

GAIN ANTENNAS

| | |
|------------------------------------|-------|
| TH6-DXX 10-15-20M, 6-el. yagi..... | \$300 |
| 18-AVT/WB 10-80M vertical..... | \$110 |
| 204-BA 20M, 4-el. Tiger array..... | \$220 |
| BN-86 balun for beam buyers..... | \$20 |
| HY-Q (USA) 50-ohm 1KW balun..... | \$15 |

ROTATORS & CABLES

| | |
|--|--------|
| All rotators now come with bottom brackets and control-indicator boxes wired | |
| KEN KR-400 medium duty..... | \$120 |
| KEN KR-500 vertical rotator..... | \$140 |
| KEN KS-065 stay/thrust bearing..... | \$25 |
| CDR BT-1A light duty 4 position push button programmable. Plus normal operation 120V AC..... | \$85 |
| CDR am III heavy duty 120V or 28V AC..... | \$175 |
| CDR tail-twister extra H/D120V or 28V AC..... | \$225 |
| RG-8U foam coax cable, per metre..... | \$1.00 |
| 8-cond. rotator cable, per metre..... | .75c |

ACCESSORIES

| | |
|--|------|
| Voltage regulator 18V AC Input, 12V DC 3A output | \$18 |
| 240/18V AC transformer | \$1C |
| Mobile bumper mounts 3/8" 24 thread | \$2 |

KYOKUTO FM-2016A

| | |
|--|-------|
| 800 channel, 2 meter FM transceiver with 4-channel memory and scanner 15W..... | \$355 |
|--|-------|

TRIO-KENWOOD PRODUCTS

| | |
|-------------------------------------|-----------|
| VFO 520 for TS 520S..... | \$130 |
| LF 30A low-pass filter..... | \$30 |
| SP-120 (TS-120 series) SP-100)..... | each \$32 |
| DI 520 adaptor TS 520 to DG 5..... | \$10 |

All further Trio-Kenwood accessories and transceivers at competitive prices.

YAESU MUSEN PRODUCTS

| | |
|---|-------|
| FT-1012D 10-16M digital transceiver w/cooling fan fitted..... | \$850 |
| SIDEBAND brand microphone to suit..... | \$10 |

CO-AX CONNECTORS

| | |
|--|--------|
| PL-259, SO-239, cable joiners, each..... | 60c |
| Right angle and T-connectors, each..... | \$1.00 |
| GLP right angles RG-58U to SO-239, w/lock nut and cap, each..... | \$1.50 |
| Double female connectors, each..... | 60c |
| MLS right angles RG-58U to PL-259, each..... | 75c |
| In-line mike sockets 3 & 4 pin, each..... | 60c |
| Mike sockets 3 & 4 pin, each..... | 60c |
| M-ring body mount w/lock-nut..... | \$1.50 |

NOVICE SPECIALS-TRANSCEIVERS

| | |
|---|------|
| 10M sideband SE-502 USB/AM 15W PEP-240V AC, 12V DC, inbuilt SWR/RF meter, 28.3-28.6 MHz clarifier tuning transmit and receive..... | \$90 |
| 10M Universe 224-M, USB/AM, 15W PEP 12V DC, 24-ch. 28.480 to 28.595 MHz, 5-Khz steps-clarifier tuning transmit and receive..... | \$95 |
| CONVERSION CRYSTALS for amateur licence holders - set of 8 crystals to convert 23-ch, 27-MHz CB units to 28 MHz. Suitable for Kraco, Sideband, Universe, Hy-range V etc., converts as per Universe 10M above - CRYSTALS & INSTRUCTIONS..... | \$32 |
| Set of 4 crystals converts to 28.3-28.6 MHz | \$15 |

All prices are NET, ex Springwood NSW, on pre-payment with order basis. All risk insurance is free of charge, allow for freight charges by air, road, rail or postal, excess will be refunded. Prices are subject to change without prior notice. All orders cleared on a 24-hour basis after receipt of order with payment.

ROY LOPEZ (VK2-BRL) Manager

AWARDS

COLUMN

Bill Verrall VK5WV

7 Lilac Ave., Flinders Park, S.A. 5025

WORKED GERMAN LARGE CITIES AWARD

This award is available for working stations in West Germany. It is available in three (3) classes and there is no restriction on the mode used. No band endorsements are made as more than one band may be used in qualifying for the award. Each city may be listed once only in the claim. The three classes are:

| DX Stations |
|-------------|
| 3 |
| 2 |
| 1 |
| 10 Cities |
| 20 Cities |
| 30 Cities |

OSLs are not required for this award, but a list certified by two other radio amateurs or an officer of a National Radio Society should be submitted together with 10 IRCS. The Award is also available to SWLs on a "Head" basis.

Claims should be sent to: Karl-Heinz Kummerle, DL2JB, 694 Weinheim, Postfach 24, Germany.

German Large Cities are: Aachen, Augsburg, Berlin, Bielefeld, Bochum, Bonn, Bottrop, Braunschweig, Bremerhaven, Darmstadt, Dortmund, Dusseldorf, Duisburg, Essen, Frankfurt/Main, Freiburg, Gelsenkirchen, Goettingen, Hagen, Hamburg, Hanover, Heidelberg, Hellbronn, Herne, Karlsruhe, Kassel, Kiel, Koblenz, Köln, Krefeld, Leverkusen,

Ludwigshafen, Lubeck, Mainz, Mannheim, Monchengladbach, Melle/Ruhr, München, Munster/Westf., Neuss, Nurnberg, Oberhausen, Offenbach/Main, Oldenburg i., Osnabruck, Recklinghausen, Regensburg, Rheydt, Saarbrucken, Salzgitter, Solingen, Stuttgart, Trier, Ulm, Wanne-Eickel, Wiesbaden, Wilhelmshaven, Witten, Wurzburg and Wuppertal.

"100 X" AWARD

This award is issued by the Mexico DX Club to licensed radio amateurs and SWLs for confirmation of QSO with stations that have in its call sign one or more "X" letters (XE1OW, W4LXX, EA3AX, I2KYZ, etc.).

To apply for this award you must have at least 100 points.

Each letter X of stations of any country outside Mexico counts 1 point.

Each letter X of Mexican stations count 2 points.

Each letter X of Mexico DX Club members counts 3 points.

QSO with the club station of the Mexico DX Club "XE1MDX" counts 10 points.

Only contacts after January 1st of 1973 are valid.

Application and QSL cards must be sent to P.O. Box 21-167 in Mexico City 21.

For safe return of the QSL cards and award, please include 15 IRCS (or 3 dollars U.S.A.).

CENTRAL COAST AWARD (VK2)

The Central Coast Amateur Radio Club issues an award to stations who meet the following requirements:

1. Overseas Stations:

Overseas stations must work Two (2) stations

resident on the Central Coast of N.S.W. OR one of the Club stations VK2EH or VK2AFY.

2. VK Stations:

VK stations must work Four (4) stations resident on the Central Coast of N.S.W. plus either of the Club stations VK2EH or VK2AFY.

3. Central Coast of N.S.W. Stations:

Central Coast stations must work Ten (10) stations resident on the Central Coast of N.S.W. plus either of the Club stations VK2EH or VK2AFY.

4. The Central Coast of New South Wales is defined as that area within the Shires of Gosford and Wyong.

5. After the necessary number of stations have been worked send a copy of the log extracts to:

The Awards Manager, P.O. Box 238, Gosford, N.S.W. 2250, Australia.

After verification of the QSOs the Award will be issued.

Good Hunting.

UPDATED ENDEAVOUR AWARD RULES

(See also AR, February 1979 and July 1979)

Rules:

1. The name of the award shall be the "ENDEAVOUR AWARD" and shall be open to all radio amateurs and short wave listeners.

2. Applicants must establish two-way amateur communications with RNARS Members residing in Australia. SWLs must monitor Australian RNARS Members.

3. Points will be awarded on the basis of one point per VK RNARS Member worked/handled per band, regardless of mode. Only contacts after January 1st 1979 will count towards the award. Contacts on the VHF bands will count double points. All contacts with HMAS NIRIMBA club station, VK2BNR, count double. To qualify the following is required:—

For amateurs/SWLs residing inside Australia — 15 points.

For amateurs/SWLs residing inside Oceania — 10 points.

For amateurs/SWLs residing outside Oceania — 5 points.

In addition, for amateurs residing outside Oceania, contacts with VK RNARS Members on the 3.5 MHz band will count double points. For the purposes of this award, any RNARS Maritime Member when located inside Australian waters may be counted as a VK Member.

4. The Award will be endorsed ONLY at the request of the applicant and the following endorsements are available:

ALL CW — ALL SSB — ALL NOVICE — ALL 3.5 MHz — ALL 28 MHz — ALL VHF — FIVE-BY-FIVE. The last endorsement being for gaining at least five points on each of the five high frequency bands.

5. A special sticker is available to add to existing certificates for gaining 100 POINTS. However, any previous MODE endorsements on the original must hold true for all 100 points, or a second award claim for mixed mode must be made. The sticker is issued free of charge to existing award holders. A SASE or 2 IRCS would be appreciated to cover return postage.

6. To claim the Award, no QSLs are required. Full log details showing the VK member (or /MM+GTH) claimed, their RNARS number, date, time, frequency, mode, plus an application fee of \$1.50 Australian or 7 IRCS are to be sent to the Endeavour Award Custodian:—

Mr. R. Baty, 43 HMAS Australia Road, Henley Beach, South, SA 5022, Australia. Please ensure all cheques are in Australian currency and made payable to "R. Baty". Clearly state what endorsements are claimed. Certificates to successful applicants will be forwarded by air-mail.

Join the IW net at 2300Z on Thursdays on 14165 kHz when you have intruder information.

THE CENTRAL COAST AWARD

Presented by

Central Coast Radio Club

S

SAMPLE ONLY

Award No.

Date

Stations Contacted

President

CENTRAL COAST - THE HOLIDAY COAST

The Central Coast, which has been called the Holiday Playground of two cities, embraces more than 220 square miles of the finest and most varied scenery. The area has a great diversity of interests including 30 of the most beautiful beaches in the State, more than 100 square miles of shark-free lakes, mountain lookouts and heavily timbered forests and more than 300,000 acres of woodland national park and forest reserves. The Central Coast is a modern industrialized community with the Shire Council, Gosford-Wyong, Gosford, the hub of the coast and the terminals of fast and modern electric train service from Sydney. Situated midway between Sydney and Newcastle, 90 miles from each, with excellent shopping facilities and a population of 78,000, it is a wonderful area in which to live or spend a pleasant holiday.

The Central Coast Radio Club — operating station VK2AFY — is a branch of the Wireless Institute of Australia which is the oldest amateur radio organization in the world.

This Award has been sponsored by The Central Coast Tourist Authority

The Central Coast (VK2) Award

ALARA

AUSTRALIAN LADIES' AMATEUR RADIO
ASSOCIATION

Results of the elections which were held at the Annual General Meeting of ALARA; President — Heather Mitchell VK3AZU, Vice President — Raedi Fowler, Secretary — Daevel Coolidge VK3ANL, and Treasurer — Mavis Russell VK3BIR. Last year's officers were given thanks for the work they did and the time they contributed. The group gave special thanks to Mavis VK3BIR for all the contributions in time and energy she has made this past year to amateur radio and ALARA.

The next meeting of ALARA will be held at the home of Mavis Stafford VK3KZS, 16 Byron Street, Box Hill, on 9 February, 1980. There is no meeting in January.

YL ACTIVITY DAY

Aims: For YLs to meet and get to know other YLs without contest pressure, to have more personal QSOs than occur in a YL net, and to help OHs who may need a quick contact for a YL award.

Date: the 6th day (GMT) of every month.

Frequencies: 3.688, 7.088, 14.288, 21.188, 21.388,

28.688 MHz ± QRM.

Times: on the hour, every hour. If you don't hear any YLs, please call CQ YL.

(Thanks to Diana G4EZI for this information.) ■

CAMEO OF MAVIS RUSSELL VK3BIR, PRESIDENT OF ALARA, 1979

Mavis has had her full call for 2½ years now. She became interested in amateur radio when her husband, Earl VK3BER, received his ticket. She took a correspondence course, but her interest waned. Mavis had heard about the formation of ALARA on the WIA broadcasts, but it was the ALARA sked on 80m that really piqued her curiosity. So, in July 1975, she took classes at the Eastern and Mountain District Radio Club. In 1977, she received the news that she had passed the full call exam. Mavis remembers that it was a "tremendously exciting moment", and it was followed by much celebrating.

Since then, Mavis has been active in many aspects of amateur radio. She has participated in WICEN activities, in particular the canoe race on the Murray. She was on the steering committee of the Frankston and Mornington Peninsula Amateur Radio Club and has been on various committees since its inception four years ago. Presently she is the QSL manager for the club.

Her involvement with ALARA began with the skeds and the monthly meetings in 1975. In 1978 she served as President. Her efforts have brought forth the ALARA Award, newly printed but not yet publicised, and an expanded membership base. She wants to have more YLs involved in the sked (Mondays 1030 GMT 3.58 MHz ± QRM). With the help of State Coordinators, she has been experimenting with moving it into the novice section in the hopes of fuller participation.

Mavis enjoys working DX and has worked the 100 countries needed for the DXCC but has yet to apply. Her goals for the coming year are to improve her CW and to get involved with satellite operation. In fact, the whole family is interested in satellites. Mavis says that one of her sons, aged 18, will be sitting for his novice exam in February. That may result in competition for the use of the rig, with three amateurs in the household.

Mavis is quite active on SSB, especially on 20m and 2m. Early in the morning before work, she can be heard on 10m, sometimes chatting with Erin YJ8NEM. It was her on air friendship with Erin that helped Mavis travel to Port Vila and operate there with YJ8 call last October. Her special QSL cards have been printed and are being posted.

The Victorian Division held a pre-Christmas picnic in Woodend at the home of Janet VK3BTU. Among those attending were Norma VK3AYL and Frank VK2AKG, who were married only a week previously. Congratulations and best wishes to the

both of you! Norma was the foundation president of ALARA in 1975.

YLRL ALARA's sister organization in the US, celebrated its 40th birthday. A YL Anniversary Contest was held and a few YLs participated. No news yet about the results.

YL Activity Day is the 6th of every month. Look for YLs on the hour, every hour, at the following frequencies: 3.688, 7.088, 14.288, 21.188, 21.388, 28.688 ± QRM. Geraldine VK2NQI and Helene VK2HD did call "CQ YL" last month but they were unsuccessful in making contacts. Mavis VK3KS hopes to give it a try next month when repairs to her antenna should be completed.

If you are a YL and would like to join ALARA, the only requirement is an interest in amateur radio. For more information, please contact the Secretary, Box 110, Blackburn, Victoria, 3130.

Maggie VK3JNRH ■

INTRUDER WATCH

All Chandler, VK3LC

FEDERAL INTRUDER WATCH CO-ORDINATOR REPLACEMENT

As denoted in November AR I have relinquished the position of Federal IW Co-ordinator, and have been fortunate in finding a replacement.

Graham VK3NXI is your new Co-ordinator as from January 1980, and it is very fitting that a Novice should take over the co-ordination.

With the conclusion of WARC 79 there is a complete new era commencing for Amateur Radio as a whole, and for Australian Amateurs, too. With the above in mind I am of the opinion that the IW should be handled by new and enthusiastic members, and Novices fall into that category. The old-timers have done a very good job in the past and it is up to the newcomers to do likewise in the future. The future destiny of Amateur Radio is in their capable hands.

Co-ordinators as at the time of writing are —

VK1NBG R. Chorley, 42 Gouger Street, Torrens 2607.

VK2AFG Les Weldon, 11 Raymond Avenue, Northmead 2152.

VK3 —

VK4NMJ Gordon Loveday, "Aviemore", Rubyvale 4702.

VK5LO Leith Cotton, 64 Werone Avenue, Parkholme 5043.

VK6WT Dave Couch, 9 The Grove, Wembley 6014.

VK7NJC Jeff Cordell, 322 Lenah Valley Road, Lenah Valley 7008.

VK8HA Henry Andersson, PO Box 1418, Darwin 5794.

Federal, VK3NXI Graeme Fuller, PO Box 156, Healesville 3777.

All Chandler VK3LC,
IARU Region 3 IW Co-ordinator. ■

INTERNATIONAL NEWS

H44

A note has been received about the formation of a new society in the Solomon Islands — SIRS. The S. Island Radio Society. The inaugural general meeting was held on 10th October 1979, and a call sign — H44SI has been obtained. The President is H44DX and Dr. G. W. Hughes is the Secretary. The address is P.O. Box 418, Honiara, Solomon Islands which also serves as their inward QSL bureau address.

RECIPROCAL LICENSING

Details were published in AR, Jan. 1978, p.25. ■

MAGAZINE INDEX

Roy Haricopf VK3AOH

From this issue onwards it is proposed to make some alterations to the Magazine Index Department of AR. The title of an article can often be misleading and it is disappointing if one goes to a lot of trouble to hunt up a magazine and then find that the article has — for instance — no constructional information. Therefore it is proposed in future to add a key letter to the various titles listed: G for general; C for constructional; P for practical where there are no actual constructional details; T for theoretical and N for anything of particular interest to the Novice. Any comments from readers as to whether they find this new format helpful would be greatly appreciated.

73 MAGAZINE August 1979

Converter for 2 GHz TV Channels (P); History of Ham Radio (G); The Potted J, Weatherproofed Antenna (P).

September 1979

History of Ham Radio (G); Remote Control for the IC225 (P).

RADIO COMMUNICATION June 1979

Improving the FT101 (C).

August 1979

CMOS Keyer with Memory (C).

CQ August 1979

The People's Temple Net (G); Foreign Morse Codes (G, N).

October 1979

DX World Records (G); Crystal-transistor Tester (C, N).

HAM RADIO July 1979

UHF Local Oscillator Chain (C); 40 Metre Beverage Antenna (C); Test Equipment Mainframe (C).

August 1979

12V 10A Power Supply (C), Ground Systems (G).

OST June 1979

AR in Tonga (G); 5/8 2 Metre Antenna (C).

September 1979

Printed Line Techniques for VHF (C, G); Ionospheric Ducting (G); Mono-Loop Delta Antenna (C).

These are a few highlights. More next time. ■

QSP

CB AGAIN

According to reports in CQ for October 1979 Japan has recently approved a CB service which will operate in a band consisting of 110 channels. Channel 1 is identical to that in the USA CB service, with the highest channels extending to just under the 10 metre amateur band. ■

USA REPEATERS

How many amateur repeaters are there in the U.S.A.? AR Repeater Directory lists 4872 in 1979, which excludes some private and closed repeaters mainly in the 70 cm band. There were 3438 on 2 metres, and 728 on 10 cm, with others on 10 (36) and 6 (193) metres, 220 MHz (446) and 1215 MHz band (7) and 24 ATV repeaters. If the growth rate continues there would be over 10,000 in 1982.—OST July 1979.

VALVE (TUBE) PROBLEMS

Writing in Technical Topics in November 1979 Radio Communications Pat Hawker quotes the growing scarcity (and consequent rising cost) of many once-familiar valve types now that new TV receivers (the last mass market for valves) are virtually entirely solid-state. Some valves for TV sets, not being designed for RF applications, may or may not neutralise satisfactorily depending on the make. Inter-electrode capacitances seem to vary widely between different brands of the same valve type, e.g. 12BY7A. ■

AROUND THE TRADE

ICOM RELEASES MICROPROCESSOR 2m RIG

Following the tradition of the earlier IC211 2 metre multi-mode transceiver, the IC251A has improved performance and facilities, apart from introducing new power supply technology. In common with the 6m version, a pulse type (50 kHz) power supply is used on AC allowing a reduction in weight and heat.

Using micro computer control, a multi-purpose scanning facility allows monitoring of three different memory channels, a program scan giving scanning between two programmed frequencies, and an adjustable scanning speed that stops scanning when a signal is received — on all modes!

Continuous coverage over the complete 2m band is provided with either 1 kHz steps on FM or 100 kHz steps on SSB, with a fast tuning facility also provided.

Further details and prices are available from Vicom at their Melbourne and Sydney addresses or their interstate representatives.

For further information contact CW Electronics, Cnr. Marshall Road and Chamberlain Street, Taringindi, Brisbane, Qld. 4109. Tel (07) 48 6601.

The instrument is available from Vicom International Pty. Ltd. and distributors.



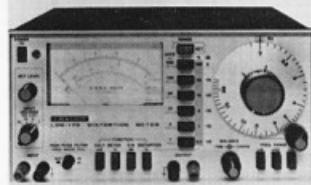
Nigel Sheppard (l) and Brian Beamish (r) discuss the Commodore PET.

NEW COMMUNICATIONS MONITORS

Instrument Flight Research (IFR Inc.) have released, through their newly appointed agents, Vicom International Pty. Limited, Professional Products Division, their communications monitor FM-AM 1000A and FM-AM 1000S. The instrument covers 100 Hz-999.9999 MHz as a generator and as a receiver 300 Hz-899.9999 MHz with accuracy quoted as 1×10^{-4} ppm. The instrument covers all functions as standard, and this includes spectrum analysis (S Model), audio synthesis, two tone generation, BFO for single sideband measurements, power measuring to 100 watts and field strength measurements as well. Indeed, all modes of measurement are available at the flick of a switch.

The instrument is powered by mains voltage (either 240V AC or 110V AC) or by its own built-in NiCad battery pack. Because the instrument is small and light it is well suited to field operation.

Further information and specifications may be obtained from the authorised Australian agents, Vicom International at 68 Eastern Road, St. Kilda, Melbourne, Phone (03) 699 6700 or 339 Pacific Highway, Crows Nest, Phone (02) 435 2766.



DAIWA RELEASE NEW SPEECH PROCESSOR

Daiwa Corporation have released the new model RF660 RF Speech Processor designed for amateur radio transceivers.

The retail price is \$109 and it is available from the Australian distributors, Vicom International Pty. Ltd., 68 Eastern Road, South Melbourne.

The RF660 is shown below with the popular Kenwood TS120V.



DIVISIONAL NOTES

VK2

34th URUNGA CONVENTION AND FIELD DAY, EASTER 1980

April 4th, 5th and 6th

Friday 4th: 2000 hrs Ocean View Hotel, Urunga. Ragchew and Registration. OM \$7, XYL \$5, Family \$15. Includes maps and tourist information, all events, morning and afternoon tea, Saturday and Sunday, supper Saturday and Sunday.

Saturday: Urunga opposite Ocean View Hotel.

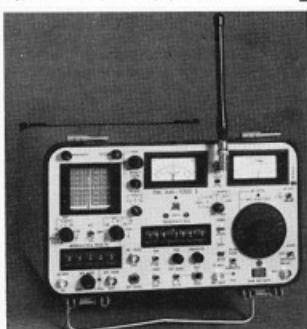
Sunday: Bellinger Show Ground. Coming from Highway turn right at Bellinger Post Office — follow signs.

Car trips have been arranged to local cottage industries for those who are interested. Details will be available at the Registration table.

Trade displays, disposals — bring and sell — lucky registration, amateurs displays, cottage industry displays, quizzes.

7100 MHz-23.5 MHz-146 MHz monitored for talk-in.

Further information can be obtained from the Coffs Harbour Club Net each Monday at 2000 hrs Aust. summer time on 3610 MHz or from Urunga Convention Secretary, Max Francis, Dowle St., Bellinger 2454.



IC225 MAKES 2k

Over 2000 units of the current Icom Model IC225 2m FM transceiver have been sold in Australia, according to the distributors, Vicom International Pty. Limited. This is in addition to the popular IC22A and IC20 series.

LEADER LDM170

As part of the vast range of Leader test equipment, Vicom International are pleased to announce the release of their noise and distortion meter (model LDM170).

BUYING OR SELLING GEAR?

HAMADS

MAKE IT HAPPEN FAST

HELP WITH INTRUDER WATCHING

TRADE HAMADS

For a very long time commercial advertising has not been accepted in AR Hamads, but as the result of discussions at the 1978 Federal Convention a decision was made to open up a "Hamads-Trade" section. The rate will be \$10 for 4 lines plus \$2 per line (or part thereof), minimum charge \$10, payable. Copy is required by the first day of the month preceding publication. This will mean that in future ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

HAMADS

- Eight lines free to all WIA members. \$9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Reprints may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means address is correct as set out in the WIA 1979 Call Book.

FOR SALE

Kenwood TS120V HF Tscr, g.c. (working A1), with manual and orig. packing, 4 mths. old, little use, but slightly soiled on sides of cabinet, \$510. O.N.O. Ph. VK3NAY/ZAU, Ph. (03) 225911 A.H.

Teltype Model 15 for RTTY, adjusted to 45.45 baud, good working order, \$50; transformer, 240/110V, for above, \$15. VK2XNPX, Ph. (02) 521 2537.

BC-348 Rx with P/S, spare valves and manual, \$50; Geloso G-209 Rx, needs repair, dial mechanism perfect, \$50; air variable capacitors, 4C-300 pF, 7 KV, brand new, \$20; 6 position rotary S/W, 13 KV, 20A, compact size, brand new, \$20. John VK2PI, Ph. (02) 52 4865.

Collins Commun. Rx 5144, with manual, full set of spare valves, \$300; Kenwood TR7400A, as new, 35W output, \$350; Chess Challenger 10, unwanted gift, \$229. VK2AVP (ex VK2NNK), QTHR. Ph. (047) 21 4373.

IC551D 8m Tscr., 100W, IC211, 2m trcvr, 6m 5 el. yagi, 10/15m 2m trcvr, ham mobile, Hustler vertical 4-BTV, 13.8V 12A, regulated DC, HD supply, Ph. (03) 249 1231, (03) 509 8637 Bus.

Hy-Gain 14 ANT Vert. Antenna, 16-40m, as new, complete with instruction sheet and carton, \$50. VK2ATP, QTHR. Ph. (02) 98 7151.

Drake Comm. Rcvr R4A, ham and IEN SW 500 kHz bands, Drake, four Drake filters installed, notch filter, exc. selectivity and sensitivity, 1 kHz frequency readout, matching Drake MS-4 comm. speaker, manual, mint cond., \$225. James VK2JIO, GPO Box 707, Sydney 2001, NSW, Ph. (02) 36 7756.

Yaesu FT7, little use, orig. carton, complete, works like a charm, \$350; Drake W-4 meier, 0-200W, a must for every shack, \$40; L. Wade VK2AQW, Tel (02) 558 3095 A.H.

FT22F 2m Transceiver (rep. 2, 5 and 8 and simplex Ch. 40) and matching FP2 AC power supply, \$160. O.N.O. M. Eared VK3AVO, QTHR. Ph. (03) 544 4109.

TH54J Tribridar, 6 mths. old, \$120; FT7 xcvr, \$400; FT22F Yaesu linear, \$160; YD301 Yaesu minitrans, \$200; IC202 2m SSB xcvr, \$120; Phillips R/C bridge GM414, \$25. VK3CCE, QTHR. Ph. (03) 509 1657 A.H.

Icom IC211 all mode, 2m, Tscr, very little use, faultless, as new cond. and operation, \$670. VK3SB, QTHR. (03) 550 3621.

FTDX 400, just re-aligned, good cond., \$350. VK1MP, QTHR.

Complete Station: Yaesu FT101E, good cond., with manual and carton, \$600; Kenwood TR7600 2m trcvr., complete, \$350; RM76 microprocessor, c/w TR7600/7623 for keyboard entry of frequencies, scanning, six memories, etc., \$95; SX100 scanning rcvr., 2 mths. old, \$330. Richard Cowles, Ph. (02) 699 9403.

Uniden 2020, \$535; VSJR 80-10m trap vert. ant., \$9; 4 el. 8m beam, \$40; CS201 coax switch, \$15; Hansen SWR bridge and FS meter, \$20. David VK3ZCR/NKG, Ph. (03) 460 5270 A.H., (03) 379 9488 Bus.

Trio CO-1303D Oscilloscope, \$190; Yaesu FT7 Tx, \$395; Yaesu FRG7 with narrow filter and slow motion drive, \$260; 5 "bandit" quad hubs, never used, \$10 ea. Bruce VK5NBA, QTHR. Ph. (08) 647 7545.

Superior Icon 701, brand new, only removed from carton for checking, completely solid state, no tune (broad band design) final, from 160 to 10m, built in dual VFOs, \$1,000 without 240V power supply/speaker, or \$1,200 with. I need the money. Len Shaw VK3NLNS, Ph. (03) 60 0421, ext. 2066, Bus.

FTDX 400, plus home brew linear, \$400 the lot. Ph. (058) 92 3283 evenings.

Trio JR80U cover. Rx, 0.55 to 30 MHz and 144 to 148 MHz, bandspread on amateur bands, Q mult, 100 kHz crystal calib. (needs xtal), recently re-aligned, \$125. VK3ZTA, QTHR. Ph. (03) 590 1157.

1956 Army Tscr A-510, good cond., incl. Morse key, headset, handset, four serials, covers to fit webbing and also carrying case, best offer. Glenn VK4NUX, QTHR.

LAC 885 ATU, built-in SWR/power meter, 0-200-250W, manual, \$150. Heathkit antenna dummy load, 1 kW and coil cable. Will VK3BTQ, Ph. (03) 758 5761.

B47 6m FM Tunable Transceiver, ex army, \$25, O.N.O. VK3YSD, Ph. (03) 67 4105 Bus.

FT101B, works perfectly, AC, has family DC-DC inverter, causes low voltage drop from 12V, very good condition, original packing, \$500 NONO. TR2000G, 2M FM portable, Ch. 40, 50, R42, R48, nicsads, original packing, as new condition, \$150 O.N.O. VK4VKU, Ph. (07) 52 7230 Mon-Fri. after 6 p.m.

YAES FT805 Tscr, Yaesu FP301 power supply, Hadeska 10/15m VS22 Yagi, Emulator 103 LBX rotator and cable; all items in new cond., tscr will have full coverage on 10 and 11m, complete station as above, \$1000. Genuine reason for selling, Kevin Cocks VK3NPK, QTHR. Ph. (051) 52 4632 bus., (51) 57 1492 AH.

Heathkit 1011 Tscr, up-dated to SB102, CW filter, 10 to 80m, like new; Heathkit 540 exc. VFO; Heathkit HP23A 240V AC power supply, solid state; Heathkit 12V DC power supply for mobile; connecting cables, manuals - \$550 the lot. VK2DA, QTHR. Ph. (02) 94 1039.

TH6DXK Hy-Gain Tri-Band Beam, completely refurbished, new boom section, new SS clamps, new trap covers, small elements, traps assembled, aluminized, taped and sealed, tuned for 14.170 MHz, tested, beam to mast assembly etc., \$200. VK2DA, QTHR. Ph. (02) 94 1039.

Atlas 210X 2MSS Transceiver with Shure 404C mike, POA, icon IC22A VHF transceiver, POA, Ian VK2AVV, Ph. (02) 653 2341 or (02) 406 5666 ext. 255 bus.

Yaesu Guttermount HF Ant, base, 2m stub, 80m and 40m resonators, \$55. VK2ZET, Corinal, N.S.W. Ph. (042) 83 3509.

Yaesu 3910, 160-10m, 200W, PEP, all solid state, digital readout, exc. cond., \$200. Alex VK2NNO, QTHR. Ph. (02) 772 2645.

F1200 Yaesu Tscr, with FP200 mains power supply, as new, cooling fan, built-in audio filter for CW, instruction manual, ZL FT200 club workshop man., \$380. VK3ASIM, QTHR. Ph. (03) 754 4194.

Multi Quartz 16 Transistorised 2m FM Tscr, 25 ch. capability, xtal inc. rptrs. 1, 8, 40 and 50, complete w/ user extras, \$180. IGL 432 MHz strip-line transistor converter, 28 MHz IF with Hy-Q xtal, neatly boxed, \$20. VK4ZT, QTHR. Ph. (07) 224 5875 bus.

Kenwood R-588D Comm. Rx, complete with all accessories, 4 select. filters, aux. bands, VHF converters, matching speaker, 240V AC and 12V DC, Kenwood 5dig. display factory installed, can be used as ext. remote VFO for Kenwood 520 and 820 series, brand new in factory cartons, \$700 firm. M. Marmet Meyer, Box 120, Vaucluse, 2030, Ph. (02) 371 8854.

Hygain trapped vert. ant. for 10, 15 and 20m, \$50. VK2XAR, QTHR. Ph. (02) 44 1389 after 18.00h.

Kyukuto 2m FM Tscr, synthesised 500 channels, dig. readout, mic., handbook, no mods, exc. cond., \$260. M. Glover VK7MG, Franklin St., Swanside 7275. Ph. (03) 57 8220.

Yaesu FTDX 560 Transceiver, good condition, recent re-alignment, \$450. VK6BD, QTHR. Ph. (09) 294 1991.

FT101B AC-DC Tscr, 160-10m, SSB-CW-AM, min. cond, little used, complete, \$525. 144V-WF-100 vert. ant, complete, good cond., \$45. VK5YX, QTHR. Ph. (08) 74 2350.

Shock Clearance. ICOM 21A/DV21, 2m FM synthesized, digital readout, full scanning and memory facilities plus several fixed channels, full metering, built-in AC P/S or 12V DC operation, all new, \$350. Ken KP12A RF speech processor, \$100. DAIWA RF440 RF speech processor, \$90. Digital freq. counter to 250 MHz, \$100. 140m helical whip, \$10. 160m helical whip, \$15. Matching speaker for TTS250, \$25. Nicad charger for Ken KP202, new, \$12. VK3OM, QTHR. Ph. (03) 560 9215.

Yaesu FL/FRDX400, matching Tx and Rx, good condition, new final tubes, \$500 O.N.O. VK3ZNC, QTHR. Ph. (051) 47 2368.

Yaesu FL10 Linear Amplifier, brand new in carton, with accessories, \$200 O.N.O. VK3ZNC, QTHR. Ph. (051) 47 2368.

Yaesu FT-301 100W, power supply FP301, and ext. VFO FP301, complete with 10W link for Novice use, excellent cond., with cartons, \$1,100 firm. VK3NRI, QTHR. Ph. (03) 54 5058.

R11Y Equipment in working condition, Model 15 (new), Model 14 reparts, and TDs, Model 19 c/w auto C/L and downshift on space, also Siemens Teleype punches and reparts. Belcome Satelite UHF VHF and sundry gear. Reasonable offers accepted. VK2ZN, QTHR. Ph. (2) 76 9547.

Ken KP202 handheld 2m FM Tscr, ch. 2, 4, 6, 8, simplex 40 and 50, exc. cond., c/w charger, nicals, helical and Y wave whips plus PL259 adapter, all only \$175. Mark. Ph. (03) 528 6962 bus.

Yaesu FT200/FP200 (black front panel), plastic cover still attached, good working order, some mods., handbook, \$350. VK2ABC, QTHR. Ph. (02) 451 1313.

Z Sockets suit 4Cx150 and 4Cx250 Sers. SK800, \$20 each. Comm. Rx Drake SFR4 (160-10m). 15-30M. NSB fitted all 23x3s good wkg. order. set. state 12V DC plus 240V mains, \$450 O.N.O. VK3YNA, QTHR.

TS520S with digital display (needs small repair), mic, key (all in orig. cartons), and IC22S 2m FM Tscr, power supply, mounting bracket, whips, \$280. Selling for financial reasons. Simon VK5JZK, 322 The Boulevard, City Beach, WA 6015.

Radio Tower, triangular self-supporting 2 section height 48 ft., 60 ft. with 2 inch tubing, base size 4 ft. triangle, top section (23 ft.) hinges over, maintenance platform at the top, completely rust proofed and galvanised, fitted with commercial guy, duty bearing thrust race, rotor and 140 ft. of rotor cable, dismantled and ready for transport. \$450. David Rosenthal VK3ADM, QTHR. Ph. (03) 592 2168 after 5 p.m.

FT211, complete with YC221 digital freq. display, very good condition, \$700. VK2KI, QTHR. Ph. (02) 78 4237.

Yaesu FTDX560, 160-10m, 56W, PEP, also spare set valves, \$450. Tric 2200 2m FM port. ch. 1-8, rptr, ch. 40, 50, 51 simplex, new nicals, \$210. Atlas 215 160-15m inc. mobile cradle, AC PS, trif. xtal osc., dig. readout, \$55. Video cassette recorder VHS YCRT syst., 6 months old, \$930. Also \$300 worth cassettes for \$100. All prices O.N.O. will fire free. VK3BEJ, QTHR. Ph. (050) 24 5814.

FRG-7 Rx, switched SSB filter in addition to normal filter installed, \$250. DAIWA Model CL-66 antenna coupler/transmatch type 500W PEP, \$375. Roy VK3XY, QTHR. Ph. (03) 557 1255.

WANTED

Urgently, Model 15 Teleprinter, am willing to pay up to about \$50 for machine in fairly good cond., set to speed 45.45 bauds, teleprinter transformer also needed. T. Robinson L31105, QTHRL.

Morse Keyboard, Aercom or similar, with memory. VK3AE, QTHR. Ph. (03) 211 7965 A.H.

Mod Demod Unit and power supply for model 15 teletype. VK88E, QTHR. Ph. (059) 85 4864.

Two 688G Valves and two 524s. Price, etc., to VK4NUY, 14 Cooradilla Street, Jindalee 4074.

Help! Urgently need circuit for PSU/batt. charger type PP6245 (032V, 0.6A, General Dynamics). Also, amplifier type 1925/1926 for Synestron-Donner counter type 1034. "Deltalets" valve or transistor Rx built, broken or in bins (will consider other 1-30 MHz Rx). Please write VK3ANC, QTHRL, will delay all costs.

Radio and Hobbies, May 1939 (Vol. 1, No. 2). August 1940 (Vol. 2, No. 5), November 1940 (Vol. 2, No. 8). Jim Gordon, 6 Graeme Ave., Ringwood, Vic. 3134. Ph. (03) 870 1745.

Yaeu FT221R 2m all mode, tcvr, good condition, also IC22A, TR7100 or FT 2m repeater, will pay current market price. Details for 6m conversion of Cybernet CTR rig. Jeff VK8GF, QTHR. Ph. (069) 52 2967.

Service Manual for R5223 Rx, made by TCA for Australian Army. Leron L. Sharp VK4NS, QTHR. Ph. (07) 59 1945.

Icom IC3P5 Power Supply to suit Icom 202E and linear, will exchange brand new IC3P6 supply which matches IC22S. Bill Jamison VK3ZXX, QTHR. Ph. (03) 277 9172.

Home for Memorabilia Items free to collector — Kingsley radio Type K/S9 signal booster with 14 and 28 MHz coils, and K/F/C tuneable 50 to 54 MHz converter, both as advertised AR 1947/48. Roy VK3XY, QTHR. Ph. (03) 557 1265.

Headphones, early Brown's type, adjustable diaphragms. Details to VK2KI, QTHR. Ph. (02) 78 4237. Yaeu FT201 Xcvr (not FT200), top price paid, or exchange FT101. Details to VK3OM, QTHR. Ph. (03) 560 9215.

Solid State High-Band Commercial Transceiver, suit conversion to 2m repeater. Two solid state UHF transceivers, suit conversion to 432 MHz for repeater control, good money for good gear. VK2ADZ, QTHR. Ph. (069) 62 3718.

Automatic Keyer. Send details and price to VK2AYR, QTHR. Ph. (02) 44 1389 after 18.00h.

WANTED KNOWN

OSI Superboard 2 or C1P users interested in swapping programs and/or information contact Frank VK4AVE on 21.175 at 2330 GMT (Sunday a.m. local time after the VK4 WIA news), or on 14.133 MHz at 0030 GMT.

TRADE HAMADS

High Gain Beams for 40, 20, 15, 10, 6, 2 and 70 cm, also UHF CB and ATU repeaters, DSFI frequency counters and kits, Mirage PWR/SWR meters, also 2A mamps with preamp. Write ATN VK3B, Box 80, Birchip 3483, for catalogue.

ETO ALPHA high power 1-30 MHz linear power amplifiers in stock now, model 76PAE with 3 Eimac 8874 tubes, manual tuning, heavy duty power supply, \$2,195; model 374AE, 2 Eimac 8874 tubes, no tune up, and manual tune if required, \$2,395; export versions all feature 10 meters factory installed; Eto Alpha appointed sole Australasian importer and distributor; after sales service. James Goodger VK2JJO, Australian Sound and Signal Research, GPO Box 5076, Sydney 2001, NSW. Ph. (02) 389 0428, 389 7786; A.H. (02) 35 7756.

A REMINDER

**A WIA MEMBERSHIP CERTIFICATE
IS OBTAINABLE ONLY FROM YOUR
DIVISION.**

SILENT KEYS

It is with deep regret that we record the passing of —

| | |
|--------------------|---------|
| Mr. A. C. LORD | VK3BE |
| Mr. R. G. J. HORNE | VK3BLH |
| Mr. A. J. WARD | VK2VH |
| Mr. W. S. LANE | VK2LY |
| Mr. K. J. COLLINS | VK3ANY |
| Mr. K. W. HELEY | VKS2KWH |
| Mr. T. WOODFORTH | L50480 |
| Mr. BEN WALLICH | ex G5BW |
| Mr. A. G. MARKS | VK3NVG |
| Mr. A. M. McGREGOR | VK4KX |

SAM LANE

The death occurred on 20.12.79 of Sam Lane VK2LY after a short illness. Until taken ill, Sam was an employee of Tamworth Base Hospital, starting work there as a tradesman in early 1942. Soon after he joined the RAAF as a Wireless Air Gunner and served in Australia and overseas. On demobilisation he returned to his former employment, finally becoming Hospital Engineer and later Regional Engineer. To his wife Joan, son Alan and daughter Susan, also his mother, I am sure all amateurs extend their heartfelt sympathy in their great loss.

G. H. Simpson VK2WY

TOM SCOTT

VK2NPK

It is with deep regret that I record the passing to Tom Scott VK2NPK on the 26th November 1979. Since serving with the Signal Division in New Guinea in WW II Tom maintained an interest in electronics. At the age of 58 he gained his Novice licence. He was not only an active operator but was a person who was committed to helping others obtain their Amateur licences. He was a tireless worker for YRS Education Service personally packing and despatching over a thousand Novice Study Kits. He was an outstanding example of a person who put back into Amateur Radio something in return for the fulfilment he gained from it. His efforts and his warm and generous personality will be sadly missed by all those associated with him.

Dave Wilson VK2ZCA/NMW

ARNOLD GILBERT MARKS

VK3NKG

It is with deep regret that I inform you of the passing of a great friend in Gil Marks who passed away on December 24th with microphone in hand.

Gil spent all his life in radio and TV servicing. He was a radar operator in the RAAF during World War 2. He operated a business for many years in Portland and shifted to Geelong where he formed the Geelong Radio Club. He was extremely popular with all he met and highly respected by all for his electronics knowledge and friendly bearing.

He will be sadly missed and I wish to convey to his wife, daughter and son on behalf of all his friends our deepest sympathy. The last entry in his log book was: "Jack said he has not received his results as yet". (I received the result on Dec. 27th — VK3VNQ).

John E. C. (Jack) Heaner

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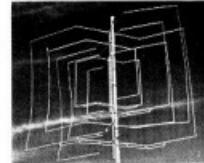
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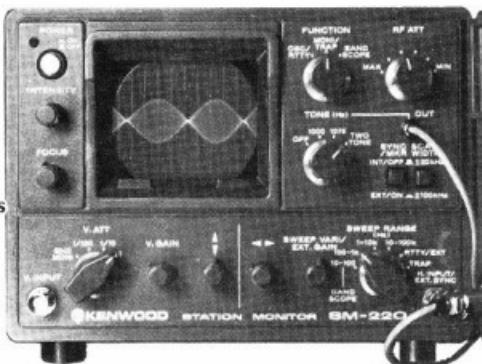
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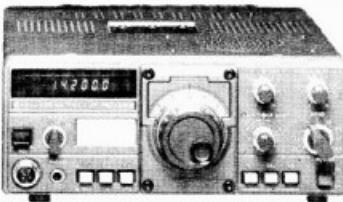
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